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# THE DETERIORATION OF OYSTER & TRAWL FISHERIES OF ENGLAND:

## ITS CAUSE AND REMEDY.

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THE

# DETERIORATION

OF

# OYSTER AND TRAWL FISHERIES OF ENGLAND:

*ITS CAUSE AND REMEDY.*

By J. P. HORE and EDWARD JEX.

LONDON:
ELLIOT STOCK, PATERNOSTER ROW.

1880.

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TO

THE RIGHT HONOURABLE

THE BARONESS BURDETT-COUTTS:

IN RECOGNITION OF THE NUMEROUS BENEFITS BESTOWED ON THE POOR AND DESERVING FISHERMEN OF THESE ISLANDS BY HER LADYSHIP:

THIS VOLUME IS INSCRIBED

BY

THE AUTHORS.

*Sept.*, 1880.

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## CHAPTER I.

FOUR years have elapsed since the Select Committee, appointed by the House of Commons to inquire into and report upon the condition of the oyster fisheries of Great Britain and Ireland, accomplished its task, and lost its labour.

The recommendations of that Committee, and the legislation that ensued, utterly failed to ameliorate the lamentable condition of our oyster fisheries. Instead of improving they have, year after year, gone from bad to worse; and, judging from present appearances, it is no exaggeration to prognosticate the extinction of those once important maritime industries a few years hence.

The lamentable state of our oyster fisheries, as we now find them, furnishes a curious and instructive contrast with those of neighbouring nations. In France, Holland, Spain, Portugal, Russia, and America, the fisheries of those countries yield abundant supplies. Although we import enormous quantities of bivalves from those countries their fisheries exhibit no symptoms of exhaustion. In point of quality, of course, the oysters we import are not to be compared with our own products. Many of the former in flavour, as is well known, are little, if anything, superior to mussels; yet the comparative

moderate prices at which they are sold, and the inordinate demand which exists for anything in the shape of an oyster, procure them a large and increasing consumption.

The flourishing condition of the oyster fisheries in the above-mentioned countries is easily accounted for, and the secret of their prosperity is well-known to be entirely due to the maintenance of large parent stocks, protection during the close season, and artificial breeding. On the other hand the deterioration of our once famous beds is attributable to the stupid policy we have been pursuing: that policy being in every respect the *reverse* of what we see producing such beneficial results to other nations.

There can be no question as to the natural capabilities of our oyster grounds provided they get fair-play. They have produced the best oysters in the world. Their annual yield has been enormous. But they have been dredged to death; the parent stocks have been decimated; no protection has been vouchsafed to them during the close season; and artificial breeding, under the existing impediments, is impossible. Need we wonder at the result? The cause is obvious; the remedy simple; therefore all the more difficult to accomplish.

Now, as to the reason why our oyster fisheries have failed I advance no theory. I say the cause is due: (I) To over-dredging: (II) To the annihilation of the parent stocks: (III) To the want of an effectual close-season: (IV) To the impediments

under the present state of the law, to artificial cultivation. And these assertions I will prove, not by any *ex-parte* statements, but by long established customs and incontrovertible facts.

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## CHAPTER II.

*I.—As to over-dredging.* Although it is now pretty generally admitted that over-dredging is the primary cause of the destruction of many of our great natural oyster grounds, I apprehend it is incumbent on me to adduce independent historical evidence by which this important part of the question at issue should be traced back to past ages, and founded on irrefutable facts. This feature has been strangely overlooked. It is unknown, or rather forgotten; and hitherto no exponent or writer on the subject has investigated it. The research and trouble it involved may account for its omission; there is nothing to be found in print relating to it; nevertheless, if it were overlooked now, a great deal of our labour might be in vain.

Early in the 17th century oysters in London went up to "famine prices." They rose from 4*d.* to 1*s.* a bushel.* And here I must remark that, unlike the present time, the good citizens of London then depended almost exclusively for their supply of oysters from Kent and Essex, and those they used were indigenous to those coasts, and were strictly "natives." But, as we shall subsequently

* "State Papers, Domestic," Jac. I., *passim.*

see, matters with them rapidly changed from bad to worse, prices yearly became enhanced, supplies fell off, and Government was obliged to interfere. The alleged cause of the scarcity and dearness of oysters in England nearly two and a half centuries ago, and the remedial measures employed in the crisis, may be interesting and perhaps instructive at the present time. As the circumstance has hitherto never been made public (so far as I am aware), it is as well to mention that the incidents as I give them will be found in numerous MS. documents preserved in the Public Record Office.

Before proceeding further in the matter it will be as well to explain why "famine prices" was applied to the best hand-picked native oysters, which in 1634 only cost 8*s.* per bushel. On Thursday, Oct. 3, 1418, a formal proclamation was issued by Sevenoke, then Mayor of London, by which it was ordered that henceforth oysters should be sold at 4*d.* the bushel, 2*d.* the half bushel, 1*d.* the peck, and ½*d.* the half peck, the assize being in all measures observed. From this date to the beginning of the 17th century I have found from time to time that these prices continued unaltered. But some years later on, when the price suddenly rose from 4*d.* to 8*s.* the bushel, the "extraordinary rates" which then ruled may without exaggeration be justly termed "famine prices." I believe in the shell-fish taverns, &c., which our ancestors patronised in those days, that they were not charged for the oysters which

they "consumed on the premises," but only paid for wine, &c., they ordered during those visits, just as no charge is made for biscuit, &c., in some taverns at the present time. Indeed, John Taylor, the "water poet" (*temp.* 1630), in his "Voyage of the Paper Boat" refers to Queenborough oysters that were

their meat
Which freely, friendly scot-free all do eat,

which appears to confirm this opinion: but oysters ordered for domestic use, &c., from fishmongers, were of course paid for at current rates per wash, &c.

The jurisdiction of all matters connected with our sea and coast fisheries was formerly vested in the Admiralty, and administered by the Lord High Admiral, the Vice-Admirals, and their subordinates commanding the different districts throughout the kingdom. In the reign of Charles I., or, at any rate, during that period now under consideration, Edward Nichols was secretary to the Admiralty, Sir Henry Marten was judge of the Admiralty Court, the Earl of Warwick was Vice-Admiral for Essex, and Sir Thomas Walsingham, Vice-Admiral for Kent. It is as well to know who these functionaries were, as they took a conspicuous part in carrying out the numerous orders transmitted to them during the oyster famine of 1634, which continued, at intervals, during the reign of Charles I. and throughout the Commonwealth, and lasted nearly to the close of the

Stuart dynasty; but I chose to use this date for conciseness so as to fix a given epoch.

The first intimation I find of the approaching famine occurred in 1629, when at a court held at Milton, convened in October that year, to investigate a complaint made by Sir Edward Hales and others concerning the excessive exportation of oysters from those parts by "divers Flemings," who were fined 10*s.* each, which sums they expressed their willingness to pay, provided they were allowed to continue the exportation complained of. This the Admiralty would not countenance, and orders appear to have been issued prohibiting the exportation of oysters to Flanders in foreign bottoms. The abuse was nevertheless continued, and at some places it appears to have been connived at, as in 1632, Edward Nuttal, the custodian and water-bailiff of Ipswich and Colchester, was imprisoned in the Fleet for alleged negligence in watching the Flemings at these places. Others endeavoured to improve the occasion by levying royalties upon oysters laden for exportation, as we find Sir Theodore Mayerne, the king's physician, applying for a patent (Nov. 9, 1633) for this purpose. This was not granted, neither was the petition of J. Linsey to the Lords of the Admiralty (Feb. 1633-34) for permission to export oysters from Faversham to Rotterdam during the ensuing Lent. The Board was steadfast in suppressing this traffic, and frequent orders were issued by Nicholas to Warwick, Walsingham, Marten, and

the captains of the guardships in the Thames and Medway, to take care that no oysters or oyster-fagots were exported from any place within their jurisdiction. For a time at least this had a salutary effect, and a vigilant watch was kept, so much so, that at Queenborough, Feversham, and other places, the Flemish and Dutch pinks that had taken in oysters and fagots were ordered to unload, and their vessels stayed.

Notwithstanding these vigorous measures the exportation was carried on, although to a less extent than formerly. The trade was encouraged by the home fishermen and others holding oysters, who were regardless of the consequences of their improvidence so long as they obtained high prices. These people contended they had a right to sell to whomsoever would buy. Others, who owned private grounds, openly rebelled against the restrictions. Amongst the latter was Sir Dudley Diggs, Master of the Rolls, who happened to possess private rights (or "lanes" as they were then termed) at Feversham, where he contended he was entitled to dispose of his oysters as he thought proper. But his water-bailiff, Thomas Askew, was arrested, and taken in custody to London, and examined before the Lords of the Admiralty. As he was discharged, I presume private grounds did not come within the meaning of the general regulations in force. However, this afforded a loophole for subsequent abuses. Capt. Cooke, of the "Henrietta" pinnace, in writing

to Nicholas, Nov. 8, 1634, describes having been to Feversham, where he found five pinks ready to take in oysters and oyster-fagots. The Dutch and Flemings told him that Askew received from each of them 6*d.* for every wash of oysters, from which they inferred he had power to let them pass, as he was water-bailiff at that port. Some of the local boats are also represented to be exporting oysters to foreign parts, which, when they found the wind unfavourable, returned to London when unable to keep them longer with safety. Askew was included amongst these delinquents, and he was further charged with illegally levying 4*s.* beaconage on each foreign vessel frequenting those waters.

Matters were now getting desperate, and further action became necessary. The Council, in a communication to the Admiralty (Dec. 19, 1634), recited the grievance prevailing in the city respecting the dearness of oysters, and instanced the representations made before Alderman Sir Hugh Hammersly, by which it was shown that the measure of Whitstable oysters usually sold for 4*d.* the bushel had then risen to 2*s.* 8*d.*, and "the greater sorts heretofore sold for 12*d.* are now sold for 8*s.* the bushel, and the very best of all are wholly transported beyond the seas; and none but the offal and refuse left to serve his Majesty's subjects, and at such dear rates as aforesaid."

These high rates being attributed to excessive dredging and inordinate exportation by foreigners,

the Council recommended the Lords of the Admiralty to instruct Sir Henry Marten not to permit any oysters to be exported by strangers or in foreign vessels, and to cause all such ships to be arrested and the owners to be committed to prison until they gave security not to offend in like manner again.

The Admiralty, acting upon these recommendations, immediately issued stringent orders to Walsingham and others to prohibit all such exportations by foreigners.

Further instructions were sent to restrain any fisherman carrying oysters to sea with the intention of putting them on board foreign vessels; those transgressing to be committed to prison until they gave bond for their future conduct. Sir Henry Marten was likewise instructed to the same purpose, and enjoined to see that "a vigilant eye and a steady hand be held in performance of their lordships' commands."

These measures, however good in theory, failed in practice. The fishermen found means of surreptitiously conveying their oysters to the foreign buyers. Some of the latter were detected, and made to discharge the oysters found on board them. The bonds exacted for such transgressions they readily furnished, and promised to desist. But the first opportunity that presented again they proceeded to make up their cargoes, and frequently escaped with the treasure so much desired. New difficulties were continually taking place that rendered the

supervision more onerous than ever. Special licences were issued at the instance of the King, whereby permission was accorded to export oysters for the use of the Queen of Bohemia and the Prince of Orange. Armed with this privilege, which was greatly abused, all the oysters that could be obtained were ostensibly shipped for these potentates, so that the supervisors were at a loss how to act.

Meantime London was deficiently supplied with the delicate bivalve, and the exorbitant prices that then ruled evoked considerable remonstrance. Other measures were devised to remedy the growing evil. Most of those suggested indicated the sordid views of those by whom they were propounded. Amongst the many petitions touching the grievance was one from Richard Forster to the King, in which he praises the excellence of English oysters and the renown acquired by the nation by those which found consumption in foreign parts. He goes on to show that the esteem which our oysters formerly held was likely to be diminished in consequence of the habit lately indulged in by unprincipled persons, who now mixed the good with others of "unseasonable and base condition in staleness." To remedy this abuse, he modestly asked for a grant conceding to him for thirty-one years the inspection of all oysters caught during that period, and to entitle him to levy a fee of 2*d.* for marking every barrel, and 1*d.* for each bushel vended in England, and 4*d.* for each barrel and 2*d.* for each bushel exported, for which privi-

lege he tendered to the Exchequer a yearly rent of twenty marks (£13 6*s.* 8*d.*).

Some urgent petitions from influential citizens on the subject were made to the Lord Mayor, to the Comptroller of Customs, and to the Recorder; and in 1637 the Lord Mayor formally certified that ample proof was given that the scarcity of oysters was caused by excessive exportation, and by the dredgers taking oysters of immature growth. To meet the dilemma, which now appeared to approach a crisis, it was hoped by subjecting all oysters exported in shells to pay 12*d.* a bushel, 2*d.* on each quart pickled, and 2*s.* 6*d.* for every obligation not to destroy any brood, that by this means a remedy might be attained. Pressure was brought to bear on the Council, and not ineffectually, as we find this body in direct communication with the Judge of the Admiralty on the matter, which at last promised to be brought to a satisfactory issue. Sir Henry Marten's "judgment" was as follows:—

"My very good Lords: I recived longe since a Letter from yo^r^ Lorr^ps^. To examine and finde out what is the true cause of soe great a scarsitye of oysters and of theire dearth, and the reason whie I have not sooner given yo^r^ Lor^ps^ an accompte thereof, hath bine because I desired to have some Courts kepte concerneinge fishinge and dredginge for oysters in Essex and Kent and at the same time to have y^t^ given in chardge to the jourers to inquire and presente uppon oath the causes and reasons of

the scarcitye and dearth of oysters, that from thenze I might have the better grounde to frame my reporte, and to give yo^r^ hono^rs^ satisfac'con thereon; And this beinge but lately done, I have collected such reasons as by the vice-admiralls of the Countries of Essex and Kent, and the Jurors at theze Courts have bine presented unto mee, which I humbly offer to y^r^ Lor^ps^ consideration.

"For Essex.—That the scarsety and want of oysters in these parts, is by the takinge of the broodes and spatt of oysters and the shells uppon which the spatt growe from off the comon oysters groundes and carrieinge them unto private Lannes and groundes, which some oystermen and others holde private to themselves, where the spatt and broode for the moste part dye, and are destroyed, as alsoe by the extraordinary greate quantity of comon oysters, and many tymes broode and all together, that are taken and presently putt upp in barrells and sent to London in such greate quantity over and above what hath bene done heretofore. That for this laste yeare, theire were barrelled upp at the leaste a third parte more than ever hath been knowen to bee barrelld in one yeare before, and that twenty yeares ago there was not in those partes the tenth parte of the oysters barrelld upp in a yeare, as are nowe; and that the Corporations of Colchester and Maldon pretendinge jurisdiction of Admiralty, doe challenge the waters of Ponte and Colne which are the beste and choisest places for the

broodeing of oysters, to belonge to them, and at prohibited tymes when the oysters spatt, doe lisence men to dredge, and soe destroy and spoile the broodes and beds of oysters; And that the price of oysters is much enhannsed by the transporta'con of them to the parts beyonde the seas, and to Hull and other [of] the north partes of this kingdom, and by the fishmongers and others that goe from London into Essex and there contracte for and buy all the oysters that are either on Lannes or in Pitts, and engrosse them into a few handes, so that none cann have any oysters but from them, and of what sorte and prices they please.

"For KENTE.—That the cause and reasons whie there is such scarsitye of oysters in those parts are, for that there are a greate extraordinary number of oystermen there more than in former tyme, and the moste parte of them beinge poore, unruly, and incorrigible, and violatinge all orders in dredginge in the sett groundes at prohibited tymes, and taking broode, have thereby in a greate parte taken awaye the stocke and nurserye of oysters and that some groundes where oysters were heretofore in those parts in greate plenty, are overgowen with owse and nothing but mussles, where formerly was plenty of oysters.

"To this (however, it is not in the presentment) I shall add the excessive transporta'con of oysters out of the kingdome, which is done under pretence of licenses granted for transporta'con of oysters for

the provision of the Queen of Bohemia and Prince of Orange, and theire household.

" Nowe for remedy: The beste course which I cann propounde to y^r Lo^pps is, That an order bee made by the Board that there shal bee noe oysters taken from off the comon oyster groundes in Essex untill they bee come to some maturity, as namely untill the oyster have twice shott and is come to bee ware and that in those parts there shall not be barrelled upp in any one weeke above the quantity of a thousand halfe barrells, and those in deale or Clap board caske, because I am informed that the puttinge of them into other caske is a great occasion of the destroy of younge timber; and the Viceadmirall to proportion how many of those thousand halves shal bee barrelld at each Towne as also that noe fishmonger or other shall buy any oysters to sell again untill they bee brought to the comon Keyes at London or elsewhere, where comon markets have used to bee for oysters, and that a fittinge proportion of oysters may bee sett downe for the yearly provision of the Queene of Bohemia and Prince of Orange, and those that are licensed to transport the same to putt in good security in the Admirallty not to exceed that proportion, and that letters bee written from the Board to the Viceadmirall of the said countries to see this carefully and diligently performed, and to bind over such as they shall find not to conforme themselves to this order, to answer theire contempte before y^r lo^pps: And further that

letters bee likewise written from the Board to the Mayors of Colchester and Malden forbiddinge them to license any to dredge in the waters of Ponte and Colne at prohibited tymes when the oysters spatt.

"6° July, 1638." "HENRY MARTEN."

Here we have the true solution of the oyster famine of 1634, and the remedial measure propounded for its cure. But like all other measures that preceded it, it was ineffectual, so far as restoring the prices and supplies that formerly prevailed. However, it is not the less instructive and useful. It demonstrates beyond doubt the cause of the dearth that had taken place; the foreign demand explains the rise in prices. Nor should we wonder if the yield from those beds had considerably diminished, as the destruction of immature oysters must have been large. I apprehend the most important item in the preceding document is that which restricts the taking of oysters under three years old. The removal of cultch from the public to private layings must have been disastrous, if the spat and brood perished in consequence, as alleged. The Corporations of Colchester, Feversham, and Milton always exercised proprietary rights within certain limits, but it would appear that they sometimes exceeded their proper boundaries. Prior to this date the civic authorities looked very sharp after the due observance of the close season, but the new system of private layings afforded opportunities

for irregularities not possible in other and better days. It was from these private grounds that oysters were brought to London for sale, with impunity, in May, June, July, and August, and to such we are indebted (?) for the precedent which, unfortunately, has since become so general. The increase in the number of dredgermen proves the prosperity of the oyster fishery at the time in those waters; but the great demand and the enhanced prices superinduced the fishermen to destroy the auriferous goose for the sake of the golden eggs.

Having thus briefly traced the history of the oyster famine as it is exhibited in the rural and local annals of the reign of James I. and Charles I., I conceive it is unnecessary for me to advance any argument or to say a single word as to the pernicious policy of over-dredging. It is a matter of history. It cannot be ignored. Its effect in those days; its disastrous consequences; the lesson it inculcates; the only remedy that could meet the case was then as now the same. And when we consider the corruption of the age, it is all the more remarkable that such a common sense view should have attained the prominence it did. Private interests, no doubt, in some instances retarded the so much required reforms. Indeed that important factor frequently nullified the adoption of the remedial measures which the authorities deemed imperative; and it may be no stretch of imagination to assume that were it not for the civil war, and the

disturbed state of the country at the time, it is more than probable our oyster fisheries would have been annihilated.

During the Commonwealth, our natural oyster-beds enjoyed, in a great measure, the luxury of a jubilee, as owing to our naval wars with the Dutch, the majority of the dredgers were impressed to man the Channel Fleet. This respite produced the most salutary effects; it gave our oyster-fisheries a chance to recover; so much so that sometime prior to the Restoration, the supplies became much more plentiful, if not absolutely abundant, and prices again returned to their minimum value.

This happy state of affairs, however, did not long continue. As soon as the Dutch ports were open, excessive dredging recommenced to meet the foreign as well as the home demand. The exportation of oysters became greater than ever. Immature oysters were taken without let or hindrance. The close season was ignored; and, as a natural consequence, the reprieve, which had been so beneficial, was soon neutralised, and matters were once more back in the old groove.

Charles II. and his merry courtiers dearly loved oysters.* He could have them at his own price

* The appreciation in which oysters were held at the Court of the Merry Monarch is exemplified by the following anecdote: The Duenna of the Maids of Honour (Lady Sanderson) who enjoyed the reputation of being incorruptible—a rare quality at the Court of Charles II.—succumbed, nevertheless, to the

(or rather at any price, for under the royal prerogative the Court was supplied at its own terms before the public durst touch any); but the commonalty had to pay highly for the esteemed bivalve.

The result was that the dearth of oysters and the excessive prices they realised at market, prevailed, at intervals, as was experienced in the days of James I. and Charles I.

Similar remonstrances as those previously referred to were made to the authorities from time to time, all tending to demonstrate the incontestable fact that the deterioration of our oyster-fisheries, at this period, was attributable to over-dredging. It is unnecessary to reproduce those documents in detail as the following example will be ample to illustrate the tenour of the whole:—

"To the King's Most Excellent Majesty.

"The humble petic'on of Raphaell Follard and Thomas Lisle, your Ma^ties^ Servants and others, Your Ma^ties^ Loyall Subjects.

seducement of Lord Taaffe's oysters "which enduced her," says De Gramont, "to consent that he should sup as often as he pleased in Miss Warmestre's apartments provided she should be one of the company. The good old lady was particularly fond of green oysters, and had no objection to Spanish wine: she was certain of finding at every one of these suppers two barrels of oysters; one to be eaten with the party, and the other to carry away; as soon, therefore, as she had partaken of the oysters and the wine, would leave the company and carry the other barrel away with her."—Hamilton's "Memoirs of the Court of Charles II."

"Sheweth,

"That your Pet^rs, by reason of their care and industry at their great charge, having long since discovered the true cause of the then and now dearth and scarsity of Oysters in Shells to have risen from the excessive and unlimited quantities of Oysters in Shells Transported to Holland and other parts beyond the Seas without paying to Your Ma^ty. any Duties at all, the same being not so much as men'coned in any the Books of rates of Tunnage and Poundage.

"For remedy whereof, one James Wright deceased, on the behalfe of himselfe and the now Pet^rs. In the yeares 1637 and 38, Petitioned Yo^r late Royall father of blessed memory to impower them to reforme the abuses aforesaid, but were interrupted by the troubles of these late tymes.

"To the end, that a victuall so wholesom and desirable may become more plenty and cheap, It is humbly conceived that the rates to be imposed of 15*d.* upon every bushell of Raw Oysters in Shells, and 4*d.* upon evry halfe barrell of Raw Oysters in Shells, and so after those rates for larger or lesser Cask or Quantities that shall be transported unto the parts beyond the Seas, out of any parts of this Your Ma^ties Realme or such other rates as Yo^r Ma^ty, or Yo^r Council learned, shall think fitt and certify Yo^r Ma^ty thereupon, will be an expedient to restreyne the said excessive exporta'con thereof, and occasion Oysters in Shells more cheap and

plentifull in and about Yo^r Ma^ties Cities of London and Westm^r and parts adjacent, and that non such be Transported without lycense in that behalfe.

" Your Pet^rs humbly pray That Yo^r Ma^ty upon the setting of such rates as aforesaid will be graciously pleased to impower Yo^r Pet^rs by L'res Patents under the Great Seal of England for collecting thereof with such necessary clauses therein, and Proclama'-cons thereupon as shall be thought fitt, for the term of 21 yeares for which Yo^r Pet^rs shall take all due care for the Regulating of the Premisses and for providing Agents and Servants at their own charges (which will be very great) for managm^t thereof. And pay into the Receipt of Your Ma^ties Exchequr. xx^Li p. ann. As an addition to Yo^r Ma^ties Revenue. And as in duty bound shall ever pray, &c."*

I apprehend it is unnecessary to dwell further upon this branch of the question as the evidence indubitably tends to the conclusion that the deterioration of our oyster-fisheries was solely caused by over-dredging; the indiscriminate taking of immature oysters; and the non-observance of the close season. And here we find history repeating itself. The same evil effects previously observed, the result of similar conditions, were again manifested, and as a natural consequence, the only available remedy was to re-impose the restrictions against over-dredging, whereby an effectual parent stock was maintained for future supplies; and a strict

* "State Papers, Dom.," Car. II., vol. 66, No. 116.

observance of the close season. These, happily, were now enforced, and abundant supplies and cheap prices once more became the order of the day.*

* *See* "Regulations concerning certain oyster-fisheries in Kent, Essex, &c., by the Mayor, Aldermen, and Commonalty of London."—London, 1697, 8°. Cf. MS. State Papers and Admiralty Records *passim*.

## CHAPTER III.

In the preceding chapter, on the oyster famine in England, during the 17th century, I briefly endeavoured to show how the scarcity of oysters at that time arose, and the remedies proposed, from time to time to meet the dearth, and to reduce the "exorbitant" prices which they realised in London during the reign of James I., Charles I., Charles II. As I previously mentioned, my authority was almost exclusively derived from State papers, illustrating the domestic history of that period preserved in the Public Record Office. In order to obtain further information, and to clear up some occasional incongruities, it is necessary to have recourse to sources for the information required. I have now to supplement what I have previously written; and to say a few words respecting the close time, regulations, prices, &c., of oysters in England in past times.

First, respecting the close time, I am at present unable to *precisely* determine the extent of the period; when it commenced and terminated is almost impossible to fix. The impression generally is, that it extended from the 1st of May to St. James' Day (July 25) or, as the popular impres-

sion is, that it included all months wanting the letter R. At the present time, although we take and eat oysters all the year round, the close season is nominally from May 1 to August 5. But if we go back as far as the fourteenth century we find the period differing from all of those. I find by an inquisition taken at Queenborough, April 2, 1375, before Lord Latymer, Chamberlain and Warden of the Cinque Ports, Sir William de Nevill, Vice-Admiral for the Northern Seas, and a duly qualified jury, amongst other presentments, oyster-dredging was prohibited from May 1 to September 14; and it was further determined that brood should not be taken at any time or season.*

On the opposite shore I find the inhabitants presented the following petition to Parliament in 1381, from which we see the close season on that coast was from May 1st to September 20th:—

PET. 5 RIC. II., A.D., 1381.—To our Lord the King, the Commons of the County of Essex make petition, that whereas many people take up oysters in the sea, on the coast of the said county, by means of instruments called "dragges," in season no way suitable for consumption, that is to say, between the

* Item, soit enquis de tous ceulx qui dragguent oistres ou muscles hors de saison, cest assavoir du commencement du moys de May tant que le jour de lexaltacion de la croix, anglice appelle Holyrode Day. Item, soit enquis de tous ceulx qui pennent broode ou fry doistres ou muscles en aucune saison de lan en destruction de eawes la ou oistres ou muscles sonient.—"Liber Niger Admiralitatis."

1st day of May and the 20th day of September, and they cause the destruction of the said oysters by reason that during that time the said oysters would increase very abundantly if they were not disturbed by these said instruments, and in no other time of the year; and those who take the said oysters in time aforesaid take more than two parts of those that are taken during the heat of the season, and outwardly prevent the multiplication of the oysters. That it may please their gracious lordships to ordain and establish by statute in this present Parliament that no man from this time forward should take [any oysters] in the parts aforesaid by the instruments aforesaid, nor by any other instruments like unto these, within the time aforesaid. And that the Justices of Labourers of the said county that for the time shall be may have power to inquire in the sessions of those who shall act contrary to this statute; and that whoever shall be convicted of this shall pay a heavy fine to the King by the decision of the said Justices; and that he who expose on behalf of the King with regard to the said trespasser shall have half of the said fine for his information.*

So far as documentary evidence goes, these regulations would appear to be in force down to the time of James II., as I find them repeated in a MS. "Book of Memorandum, Orders, and Laws of Admiralty,"

* "Rotuli Parliamentorum ut et Petitiones et Plac. Parl." Vol. II., p. 369*a*.

in the British Museum (Harl. 3503), *temp.* $\frac{1671}{1686}$. In corroboration of this impression, I have discovered statements made by contemporary writers, as, for instance, the Venetian Ambassador in a despatch dated Aug. 18, 1554, describing the state of England at the time, he observes that we then had "an immence quantity of oysters, so that occasionally as many as 20 smacks (*scute*) are seen filled with them [in the Thames], but during four months in the summer it is forbidden either to take or sell them."* Buttes in his *Dyets Dry Dinner* (*temp.* 1599) says: "it is unreasonable and unwholesome in all months that have not an R in their name to eat an oister, because it is then venerious," and Holinshed writing about the same time expresses the same opinion.† Now let us see the other side of the question.

When Henry VIII. went to meet the King of France, Francis I., on the "gentle and joyous"

* "State Papers," Venetian, pp. 542–3.

† "I might here speak of sundry other fishes now and then taken upon our coasts; but since my mind is only to touch either all such as usually gotten, or so many of them only as I can well rehearse upon certain knowledge, I think it good at this time to forbear further entry of them. As touching the shelly sort we have plenty of oisters, whose value in old time for their sweetness was not unknown in Rome (although Mutianus, as Pliny wrote, prefered the Cicicene before them), and these we have in like maner of divers quantities, and no less variety also of our mussels and cockles. We have in like sort no small store of great whelks, scalops and periwinkles, and each of them brought far into the land from the sea coast in their several seasons. And

Field of Cloath of Gold, I find among the provisions sent to Calis on July 10, 1520, were nine barrels of oysters which cost 1*s.* 8*d.* per barrel. During the visit of the Emperor Charles V. to Henry VIII., from May 27 to June 19, 1522, oysters and pheasants formed a conspicuous item at the royal and imperial banquets during his sojourn in England. Machyn, in his diary, mentions having eaten oysters in London in July 1557.* It may be contended that these instances only tend to illustrate a disregard for the observance of the close season in London, and apply only to exceptional cases. At any rate its observance appears to be disregarded in some instances at the fishing grounds, as I find in the depositions of one Lawrence Brown taken before Attorney-General Coke and Solicitor-General Fleming, relative to certain disloyal expressions alleged to be used by Sir J. Smythe, at Colchester, June 11, 1596, that they "dined at the White Hart

albeit, our oisters are generally foreborne in the four hot months of the year, that is to say May, June, July, and August, which are void of the letter R; yet in some places they be continually eaten where they be kept in pits, as I have known by experience."—"Chron.," b. 3, p. 274.

* "The xxx day of July, Master Dave Gyttons, Master Meynard, and Master Draper, and Master Smyth, Master Coldwelle, and Master Asse and Gybes, and Master Peekyngton, and Monser the Machyn de Henry [the writer] and mony mo, ded ett alff a busshell of owsturs in Auckur Lane at Master Smyth and Master Gytton's seller a-pone hogshedes, and candyll lyght, and onyons and red alle and clarette alle, and muskadylle and malmesey alle, fre cope, at viij in the mornyng," p. 143.

Inn, when their food was oysters and crabs which Sir John had *bought* at the market in the said town"* I could cite many other instances which prove beyond dout (notwithstanding admiralty laws and regulations to the contrary), that the close season was frequently violated, not only in the sixteenth, but also in the seventeenth century. One more case must here suffice, viz.: when Queen Elizabeth visiting Lord Ellesmare at Harefield, from July 20th to Aug. 2, 1602, among the presents received from different friends: "Mr. Doctor Harris" contributed two firkins of oysters; Sir Thomas Mildmay, two firkins ditto; Sir Thomas Lucas, four firkins ditto; and Mr. George Hyre, four firkins of "greate" ditto, and four firkins of "small" ditto;† and Sir Walter Raleigh writing (Aug. 27, 1601) to Lord Cobham, Warden of the Cinque Ports, Constable of Dover Castle and Lieutenant for Kent, hopes his lordship "will be here to-morrow or Saturday, else my wife says her oysters will be all spoilt, and her partridge stale."‡ The only feasible solution of these apparent contradictions, is that the close time (practically) only applied to the "natural" oyster-grounds, and that the oysters consumed from time to

* "State Papers," Dom., Eliz., vol. 259, 49.

† "Egerton Papers," p. 274.

‡ In a Royal Household Book, 43 Eliz., for the information of Her Majesty's cooks, a list of "the nature of all fowls coming in season every month of the year" is given, from which it appears that partridge were to be provided for the Court in June, and young partridge in July.

time during the close season belonged, and were taken from off artificial beds, *i.e.*, pits, lanes, &c., referred to by Holinshed, Marten, and other contemporary writers. It may be suggested that, perhaps these oysters were preserved ones; I think not, as they would be so defined if such was actually the case, *e.g.*, pig' (pickled), sal' (salted), or recent (fresh), and when not so designated, they must necessarily have been "oysters in shells."

With respect to the exportation of our oysters "to foreign parts," I believe the business flourished more or less from the Roman occupation of Britain, down to a comparatively recent period. As we have already seen it was owing to excessive dredging to meet the demand for exportation, that caused the increase in prices, and led to the dissatisfaction which prevailed in London in the reign of Charles I. The deportation of our oysters by the Flemings and Dutch dates much further back, and several instances might be quoted to establish the fact if proof were needed. I wish to explain why the Queen of Bohemia was specially favoured with the royal permission to export Colchester oysters after restrictions had been put upon all others. I presume her majesty, like most of her sex, was partial to the succulent bivalve, and liked to patronise "native" produce; she was sister to Charles I., and as the worthy burghers of Colchester contributed liberally towards her marriage expences, she probably thought by patronising

their oysters mutual advantages would accrue. At any rate, English oysters were highly esteemed in Bohemia and the Low Countries long before this period. Fynes Moryson, the roving Englishman of the sixteenth century, who visited Prague in 1591, says, "I did here eat English oysters pickled, and a young Bohemian coming in by chance, and tasting them, but not knowing the price, desired the merchant to give him a dish at his charge, which contained some twenty oysters, and finding them savory, he called for five dishes, one after another, for which the merchant demanded, and had of him, five dollars, the dearness no less displeasing his mind, than the meat had pleased his taste." Pursuing the traveller into the Netherlands, we find our oysters highly esteemed, and highly expensive, a hundred of which "in divers cities sold sometimes for eight or twelve, yea, for twenty or thirty stivers."*

Next with reference to the oyster-fagots exported by the Dutch from our oyster-grounds, as mentioned from time to time in the preceding chapter, I am not surprised if some readers should jump to the conclusion that they were neither more nor less than *fascines* similar to those recently used as collectors of spat by French oyster-culturists. Indeed I once entertained the same opinion, but soon found it was untenable. What those oyster-fagots were, I am still unable to precisely determine. However, they certainly were not the same as

* "Itinerary," pp. 378, 362.

modern *fascines* used for "cultch." In the original documents they are spelt "ostrie faggots," but the orthography is of no consequence. I find in a schedule of the tolls, fees and duties, payable to the water-bailiffs of Colchester, for the use of the Corporation, enjoyed by prescription since the reign of Henry I., as they were renewed and confirmed Oct. 1574, and again in March 1668-9, that "ostry-faggots" were charged 4*d.* the hundred, and every bulk of ditto 4*d.*, which establishes their antiquity, but fails to enlighten us as to what they were. However, I have noticed a payment of 6*s.* for "one hundred oyster-fagots" among other items of food, provided to furnish the funeral feast of John Dudlie, Esq., who died in London, Sept. 29, 1580, from which we may safely deduce that they were not fagots covered with spat, as it would be preposterous to imagine that ichthyophagy, be it ever so eccentric or fastidious, as it undoubtedly was in those days, would embrace shell-fish so utterly insignificant, as they undoubtedly would be. In Boys' History of Sandwich there occurs a list of excise and other duties anciently levied at the Cinque Ports, somewhat similar to the other one above referred to, and although oyster-fagots are not mentioned, we nevertheless obtain a clue which in the absence of more definite information on the point, partially serves to elucidate the matter. He gives a list of certain articles subject to import duty; the original in Norman French with an English trans-

lation. *Garbe daffer*, he translates as "steel fagot," and *garbe de fer de Cologne*, "fagot of Cologne iron." I have consulted Halliwell's "Glossary of Obsolete and Provincial Words," and a great number of glossaries of various authorities besides, without being able to find any definition of the word "fagot" bearing on or in any way referring to oyster-fagots. However, by going back to medieval times in the "Glossarium mediæ et infime Latinitatis," I find the word *garba* used in reference to weights and measures with a cross reference to Fleta, a famous legal authority who flourished *temp.* Edward I.; and after consulting it, tom. 2, cap. 12 (quod inscribitur de ponderibus et mensuris), found the term is applied to many things whose proportions more or less differ from each other, but in no respect applying to oyster-fagots. I have come to the conclusion that they were given quantities of immature oysters of about two and under three years' growth; in fact the sort technically called "half ware." I apprehend the phrase "ostrie-fagots" was idiomatically applied to small oysters in the same sense as pickerl, lamperl, codling, elver, salmet, &c.,* were commonly termed in those days. That immature oysters were frequently taken and promiscuously sent to market we know beyond doubt, and as we have already seen, the pernicious practice led to such disastrous consequences that its suppression was eventually ordered to be enforced.

* Small pike, lamprey, cod, eel, salmon.

Apart from the essential questions at issue (which admit of no equivocation), many subordinate ones concerning the history of the oyster famine appear so contradictory and obscure that it is frequently difficult to arrive at a satisfactory conclusion. Even Sir Henry Marten's "judgment" given *verbatim et literatim* in the preceding chapter forms no exception. On strictly legal issues, one would imagine the judge of the Admiralty Court could hardly err so obviously as he unquestionably does, with reference to the privileges and rights of the Corporations of Colchester and Maldon, as to their jurisdiction over the oyster-fisheries in the waters of Colne and Ponte. He impeaches the Corporation of Colchester for illegally claiming Admiralty jurisdiction, a privilege always enjoyed by that body as expressly and particularly acknowledged in 31 Henry V. and other charters down to *temp.* Charles I. It is probable they claimed jurisdiction in and over the adjoining estuaries to which such powers did not apply. In the year 1189, Richard I. granted to the burghers the fishery of the river Colne, from the North Bridge as far as Westness; and this grant was very amply assured and confirmed to them by subsequent charters, especially that of Edward IV. The fishery included not merely the plain course of the Colne, but the creeks, &c., with which it communicates, viz.: the entire Colne water as it is commonly called. It is rendered indisputable by records still extant, that the burghers

of Colchester are legally entitled to the sole right of fishing in this water, to the exclusion of all others not licensed and authorised by them; "and have and ever had the full, sole and absolute power to have, take, and dispose of to their own use in such manner as they shall think proper, all oysters and other fish within the said river or waters." But there are some parishes adjoining, whose inhabitants are admitted to participate in it upon licence of the Mayor to fish and dredge oysters therein, these parishes being Brightlingsea, Wivenhoe, and Great Doniland. For the better preservation of so valuable a privilege, courts of Admiralty and Conservancy have been customarily held on Colne water; at which all offences committed within the limits of the aquatic royalty were presented by a jury yearly, and proclamation to that effect was made by the legal authorities on the water near Mersea Stone (which is within the jurisdiction of the town) "that the river Colne is shut, and all persons are forbidden to dredge or to take any oysters out of the said river or the creeks thereunto appertaining, or any whatsoever before the Feast of St. Mary Magdalen (July 20), and then to come in and make licence," which was called *setting*, *i.e.*, shutting the Colne.

This observance was rigorously enforced, but attempts were made at various times to violate it, and to deprive the borough of its ancient privileges. Of these the first and most notorious was that of

Linel de Brandenham, lord of the manor of Langinhoe, who in the reign of Henry III., enclosed part of the river with the intention of appropriating it to himself. Upon which occasion a commission being granted to Robert Herle, Lord High Admiral, to inquire by jury into the affair, it was adjudged, after several sessions and adjournments, that all enclosed by water should be wholly taken away. Enraged by this judgment, "the covetous and tyrannical earl besieged Colchester for a quarter of a year, attempting to burn it, and caused several persons to be drowned in the Colne, through the instrumentality of thieves and robbers whom he retained as his servants at Langinhoe; "for all which enormities" says Morant, "he was fain to sue for pardon, and this affair seems to have proved his ruin, for shortly after he passed away his manor of Langinhoe."*

The next attempt upon this royalty proceeded from John, Earl of Oxford, who availing himself of the weakness of Henry VI., actually procured a grant for it. But the Corporation of Colchester, rather than quietly surrender their privilege, entered into a contest with the earl; first by a *scire-facias* in Chancery; and next by a trial at Westminster, where a jury confirmed their right. Afterwards at an investigation of *nisi-prius* at Colchester, a jury decided the point in favour of the Corporation. Still so determined was the earl, that he brought an

* "History of Colchester."

attaint against the jury; upon which a new trial being obtained, the first judgment was affirmed against him, and his letters patent from the King were recalled and cancelled.

In 1629–30, Sir Roger Townsend, Lord of Wivenhoe Manor, made another, as unsuccessful, attack upon the fishery. His object was to prove the non-extent of the town's jurisdiction beyond a point of the land in the river, near his manor, which he contended was the "westness" of the charters, rather than in the parish of St. Osith; but he failed and was compelled to ask for licences for a summer's dredging of the bailiffs, just as were others.*

Lesser attempts subsequently made, proved alike ineffectual. In trespasses of individual dredgers not licensed, it appears that anciently, they were fined, as has been mentioned; but afterwards their boats and tackle were also seized and detained till the fines were paid. Of the latter summary mode of procedure, I have seen several instances recorded in the Book of Assemblies, which I was permitted to inspect by the kindness of the mayor of Colchester, to whom I am extremely obliged.†

* "History of Colchester."

† Memorandum that John Ringe of East Mersey, and four others, being severally dredging in the river and water of Colne (July 3, 1679) without the Blockhouse, within the liberties and royalties of the town and borough of Colchester, the water sergeant of the said town, by warrant of the Mayor did arrest their several boats in which they so dredge and brought them up to the New-Hythe. Whereupon the said appeared before the

The extraordinary demand for oysters in England, both for home and foreign consumption, undoubtedly stimulated fishermen, who were proverbially "poor, unruly, and incorrigible," not only in the time of Charles I., but continued in an "incorrigible" state long after, to disregard and violate the

Mayor and Aldermen at the Moot-hall, and humbly besought them, that their said boats might be discharged, which the Mayor (by the advice of the Aldermen, and upon the said persons' submission to the payment of several fines laid upon them) was pleased to grant; each of the said persons entering into a bond of £50 to the Mayor and Commonalty of the said town and borough, that they, or either of them, should presume to fish within the liberties or royalties of Colchester without licence ofthe Mayor for the time being.

July 7. John Ryme of Brightlingsea was served in the same manner.

July 25th. Thomas Pilgrim of Chich St. Osyth was with his boat taken dredging below the Blockhouse within the liberties and royalties of this town. The water bailiff arrested his boat and brought it to the New-Hythe above mentioned, and there it lay until 27th of the same month, on which day the said Thomas Pilgrim appeared before the Mayor and Aldermen at the Moot-hall, pretending himself to be fisherman to the Lord Colchester, and to be licensed by his lordship to fish where he did, and brought with him this letter from his lordship to the Mayor:—"Mr. Mayor, I understand by my servant and oyster-dredger, Thomas Pilgrim, that you have caused his boat that he dredges oysters with, to be taken away from him; he is my oyster-dredger, and I do desire you to restore him his boat again, at the request of your friend, Colchester." The Mayor vindicated the rights of the Corporation, but reduced the fine to £3, which was duly paid, and Pilgrim entered into a bond as the other fishermen had done, when he and his boat were discharged.

lax fishery regulations of those times whenever an opportunity presented. The trouble and the unsettled state of the country during the Civil War in England, was a fortunate circumstance for the oysters, which thereby enjoyed a jubilee for some years. The impoverished grounds in Kent and Essex became replenished; had it been otherwise, they would be soon dredged out, and be no better off then than they are now.

## CHAPTER IV.

II. *Respecting the maintenance of a sufficient parent stock of oysters on the natural beds*, whereby the supply may be kept up, and an annual fall of spat thereby secured to meet subsequent consumption, I submit its observance is absolutely indispensable to secure uniform and permanent success, and to restore exhausted grounds to their pristine prosperity.

I am fully aware how difficult it is to define the dimensions of a "sufficient parent stock," or the number of oysters it would be necessary to protect for this reproductive purpose.

In some instances, oysters have been imported from foreign grounds, and re-laid upon parts of our coast where they fatten, but will not breed. In other cases they have emitted spat, but that spat failed to fertilize, in a great measure; it is said not to have matured, and necessarily produced the most meagre results.

In considering this intricate point, it is necessary to draw a clear distinction between factitious and natural beds. With regard to the former I have nothing to say; they have nothing to do with this part of the question; they never had. Yet strange

as it may appear, nearly the whole of the evidence given before the Select Committee of the House of Commons harped upon the cultivation of artificial and private beds, with which legislation had really little or nothing to do, at the expence of the natural ones. It was assumed by our "great" enthusiastic "scientific" oyster culturist, that by importing a few oysters from Ireland, France, Portugal, or America, and by re-laying them upon some part of our coast, to which they were utterly foreign, that they would multiply in unlimited quantities, and ultimately become excellent natives or the parents of future natives. In this respect (as the sequel proved) "science" was very much at sea. If the welcome strangers spatted, the spat did not come ashore; it did not remain on the breeding-ground. Perhaps it emigrated and colonized in the antipodes, or harked back to its native heath. At any rate, the glorious anticipations of our official sciential savan only produced a fiasco. It seems hopeless to derive reproduction from that description of stock. But observe the results which have been obtained from indigenous stock. There is hardly an instance on record where protection has been afforded to a native bed, even though it were sparsely stocked, that it did not gradually pick up, and after being let alone for a few years, asserted its recuperation. It is therefore obvious that the best means to adopt with a view of replenishing our natural oyster-grounds, and restoring an exhausted fishery and

making it a prosperous one, is to preserve inviolate the remnants of any stock which may happen to escape the ruthless destroyer; or, if that course be most unattainable, to obtain supplies from grounds as near in geological features, depth, and temperature as the one it is intended to replenish.

Now as to what constitutes a "sufficient parent stock," I would say, "The more the merrier, provided they are the right sort," *e.g.*, indigenous, or as nearly akin as possible to the aborigines of the beds to be replenished, as it is not quite so much a matter of quantity as quality. In order to show what may be done with even a small number, I adduce the following facts.

The Rev. Mr. Rowlands writes, in 1721, to the Rev. Mr. Durham, F.R.S., as follows:—

"The river of Mene, that divides Anglesey from Carnarvonshire, near which I live, has at present the bottom of its channel for some miles in length, all bedded with oysters, in such plenty, that in the season, several boats are daily employed to dredge them up, and have done so these eight or nine years last past to their great profit; but what I recommend as observable is, that about twenty-four years ago, we have good assurance that there were none to be found on that bottom, but that a gentleman about that time, caused three or four hundred large oysters to be dropped into the channel, just under his land; from the spat or seed of which it is most probable, the flux and reflux of tides dispersing it,

all the bottom at length, where small stones and large cultch received the sperm, became covered with oysters. And what favours this conjecture, that they are brood of oysters begun at that time, is, that at the first finding, they appeared young and small, but have since yearly increased in bulk and plenty, though prodigious quantities have been taken up of them." "Phil. Transactions," vol. xxxi., p. 251.

I refer the reader to similar results given by Morant, "History of Essex," vol. ii., p. 300, note, and by the Poet Southey, "Common Place Book," vol. iv., p. 402, where he instances how the Solway Firth was colonized with oysters in a similar manner. These examples occurred early in the last century, and early in the present century; I prefer to cite them, as they are beyond cavil, to any of the numerous instances of comparatively recent times. In every case the result has been the same. From the smallest beginning, where the initial stock was comparatively insignificant, it is proved wherever and whenever they got a fair field and no favour, the newly stocked grounds yielded abundant supplies, and that these supplies would have still continued to flourish, were they not dredged to death; and as the parent stock was exhausted absolute failure as a matter of course supervened.

As to the *modus operandi* to be observed in carrying out this essential reform, it seems to me to be simplicity itself. It is the dredger's interest to

respect and to protect any natural grounds so restocked during the period deemed necessary. Such grounds should be buoyed and mapped out, and all dredging thereon absolutely prohibited for a number of years. During the interval, the stock would increase year by year, and when the inevitable benefits were *un fait accompli*, then let the fishermen obtain the reward of their previous forbearance. But even then, certain restrictions would have to be imposed, for if dredging was unlimited the restored bed would incur the risk of being over-worked, and if no parent stock were suffered to remain, it would soon be as badly off as ever. However, these are matters of detail only to be adjusted by a mutual understanding among the fishermen and the authorities. The concurrent benefits accruing to the dredger and to the consumer are so obvious, that in practical hands the apparent difficulties would be soon overcome, and I have no doubt that after a little experience it would be found to work smoothly.

Imposing such restrictions on the dredger may, at first, appear difficult to overcome; they may look upon it as a grievance, but it is more sentimental than real. Though temporarily debarred from dredging over such grounds they must eventually reap the benefit of their forbearance a thousandfold. And if such parts of the coast now are admittedly denuded of oysters; parts where it is a loss of time to dredge; an unprofitable labour;

grounds that are "dredged out," as the saying goes; surely the fishermen can have no objection to conform to the only remedy which is possible, under the circumstances, to meet the evil. If therefore they are satisfied to give it a fair trial, and if Parliament in its wisdom legislates to this end, I have no doubt, a little experience will show that the only remedy capable to meet similar instances in former times will not fail now in producing like results.*

* "THE OYSTER SEASON.—Since the Truro Corporation obtained an order, three years ago, for the protection of this fishery and enforced a close season, the increase in the yield has been extraordinary. Last week the season was opened by 143 licensed dredging boats, against 73 last year, and the takes during the week have been so abundant that many of the hands, some of whom are youths of 17 or 18, earned £1 per day each. The great increase in the yield is accounted for not only by the close season, but by the fact of the fishery having been entirely closed for one year."—The "Times," September 13th, 1880.

## CHAPTER V.

III. With regard to the necessity of maintaining *an effectual close season*, I submit that its observance is absolutely indispensable in order to secure the restoration of our natural oyster grounds and to attain their permanent prosperity. I have already sufficiently shown (*inter alia*) the disastrous consequences arising from the violation of the close season; and there can be no doubt that dredging in olden times, during these periods indisputably "destroyed and spoiled the broods and beds of oysters." Now, however, we are wiser (?) in our generation. Mr. Buckland, Inspector of Salmon Fisheries, in his evidence taken before the Select Committee of the House of Commons on Oyster Fisheries, March 23rd, 1876, advocated a policy, which has unfortunately been adopted, diametrically contrary to the views of our ancestors upon this question. As we have seen, they were steadfast in affording protection to the natural and public oyster grounds during the close season, while they were indifferent as to what became of the factitious ones with which, of course, they had no concern. Mr. Buckland adopts the opposite course: he says the public grounds "must be *continually* dredged, and dredged, and dredged;" but, if you

grounds that are "dredged out," as the sayi surely the fishermen can have no obje conform to the only remedy which is possil the circumstances, to meet the evil. If they are satisfied to give it a fair tri Parliament in its wisdom legislates to t have no doubt, a little experience will sho only remedy capable to meet similar in former times will not fail now in prod results.*

* "THE OYSTER SEASON.—Since the Truro obtained an order, three years ago, for the prote fishery and enforced a close season, the increase in been extraordinary. Last week the season was c licensed dredging boats, against 73 last year, and th the week have been so abundant that many of the l whom are youths of 17 or 18, earned £1 per d great increase in the yield is accounted for not onl season, but by the fact of the fishery having been for one year."—The "Times," September 13th, 18

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IV. As to the *impediments to natural and artificial cultivation*, the chariot of modern science stops the way. We are told that if the oyster culturist cannot command "heat and tranquillity" all his efforts will be in vain. Then we are favoured with a remarkable definition of what heat and tranquillity should be. If the temperature of the water in which oysters are to be bred, with any prospect of success, exceeds 70 degrees, the bed becomes a Hades, out of which there is no redemption. If the temperature is less than 68 degrees the bed becomes a perpetual Purgatory out of which the oyster culturist need not anticipate any return for his capital and labour. If bountiful nature does not come to the rescue with a fixed temperature not lower than 68 or higher than 70 degrees it is hopeless to expect the spat to mature. Even with this favourable temperature Mr. Buckland is not happy. "I will not say that one individual oyster will produce spat every year; that is not what I mean. A salmon does not breed every year, but every three years; but I mean that you would have spat." When pressed by Mr. Malcolm if he could prove these extraordinary annunciations, the "scientific" dogmas degenerated into "a great idea" the accuracy of which, of course, he could not establish. And when we are told by such an authority that the failure of success of the spat is a question of "about eight degrees" we need not wonder if capitalists are reluctant to embark in artificial oyster cultivation, to

the great profit of the monopolists, who knowing better, ignore such nonsense, and reap the reward.

Although it is almost a loss of time to analyse Mr. Buckland's whims relating to the natural history of the oyster, I think it is only fair to afford him every latitude on this important question of temperature.

In describing the various modes of oyster culture to the Select Committee of the House of Commons (March 20th, 1876, Q. 196) he says . . . . . "I then went to the Isle of Ré, to examine what I could see there. What was the first thing I saw there? We saw vines; we looked down from the vines on to the oyster beds. There are no vineyards in Essex; the same temperature which makes the vines grow, makes the oysters spat." A very conclusive argument if true, but what are the facts. The celebrated Samuel Pepys, in his famous "Diary" records how, once upon a time, in the reign of the "Merry Monarch," when he was the guest of Sir William Batten at Walthamstow, in Epping Forest, that Sir William regaled his friends with wine made from the vineyards then in the Forest "than which the whole company said they never drank better foreign wines in their lives. God be thanked for it!" There are no vineyards now in Essex, but there is no doubt if they were revived it is most probable, under proper management, they would produce as good wine in the 19th century as they did at the date mentioned by Pepys.

In like manner with regard to the oysters, if the beds be dredged to death, if immature oysters be taken indiscriminately, if the close season is disregarded, and if the public are frightened away from artificial cultivation by this bogus of temperature and the difficulty and expense in obtaining grants of fore-shore, under the present state of the law, there will soon be neither oysters nor vineyards in Essex, or on any other part of our coast, except the private beds in the hands of the monopolists.

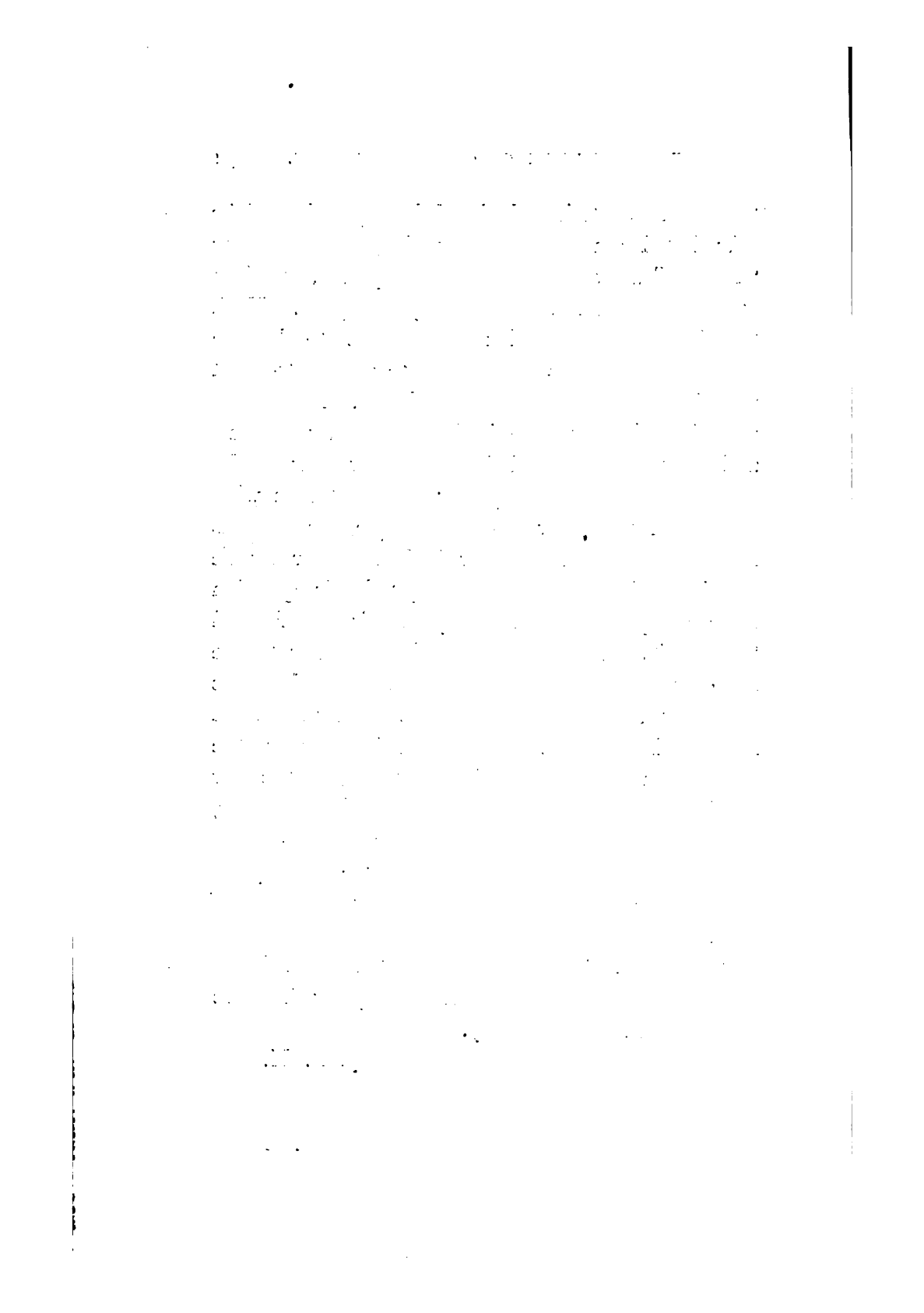
So much for heat. Now for tranquillity. Tranquillity, according to Mr. Buckland's interpretation, means continual dredging: perpetual disturbance. *Verb. sap.*

To sum up, in conclusion, the paramount issues affecting the deterioration of our Oyster Fisheries, I submit that the destruction of these once flourishing industries has been chiefly caused by over-dredging and the want of a proper annual close season. When these essential laws were enforced we always enjoyed oysters in abundance and fine in quality. As I have pointed out, for nearly 300 years from the time of Edward III. to the time of Charles I. when the annual close-time on the public grounds was strictly observed, and when there was no over-dredging, the price of native oysters in England was 4*d.* a bushel.* Unfortunately for the consumer and for the fisherman, the new "science" dispenses with such antiquated ideas. I myself do not profess

* They are now £12 12*s.* a bushel, and of inferior quality.

to know an oyster's right hand from (he, she, or) its left; but I am open to conviction, and whenever "science" will enlighten me with any data, based on common sense, I will cheerfully accept it. Until this is accomplished I must decline to believe untenable theories, and continue to adhere to what the history of the question inculcates. At present there is nothing tangible in this so called "science," and it is an admitted fact that our new guide, philosopher, and friend (?) cannot even tell us what the sex of an oyster is—whether (he, she, or) it is hermaphroditic, or whether it is male or female remains unknown. The history of this question conclusively proves the fallacy of this new fangled "science," and until the latter demonstrates to the contrary we must continue to recognise the evils attending over-dredging and the want of a close season. I therefore submit that it behoves the Legislature to pass an Act reinstituting the law which in former times produced such salutary results, having for its principal provisions, certain restrictions in dredging, a close season extending from May 1st to August 31st, and to simplify the acquisition of fore-shore concessions for the purpose of artificial oyster-culture. This should be done without delay, otherwise the resuscitation of our oyster fisheries soon will be an impossibility.

J. P. H.



THE

# DETERIORATION

OF THE

# TRAWL FISHERIES.

*ITS CAUSE AND REMEDY.*

By EDWARD JEX, C.C.

## FISHERIES.

I find relating to trawling off occurs in a petition presented the year 1376-7 which is as

III., A.D. 1376-7,—Petition No. 50.

1 several places within your said
and havens of the sea, where was
ore these times to be a good and
ry to the great profit of the realm,
rt destroyed and rendered valueless
ıe to come, by some fishermen who
s during seven years past by a subtlety
ıew instrument which is amongst them-
d a "wondyrchoun," made after the
a "dag" for oysters, which is unusually
ıich instrument is attached a net (*ree*) of
mesh, no manner of fish, however small,
within it can pass out, and is compelled to
ıerein and be taken. And besides this, the
d long iron of the said "wondyrchoun,"
destroys the spawn and brood of the fish
ı the said water, and also destroys the spat
ters, muscles, and other fish by which large
e accustomed to live and be supported. By
s of which instruments called "wondyrchouns"
ıany places aforesaid the fishermen aforesaid

take so great abundance of small fish aforesaid, that they know not what to do with them, but feed and fatten their pigs with them, to the great damage of the whole commons of the kingdom, and the destruction of the fisheries in like places. For which they pray remity.

*Responsio.*—Let Commission be made by qualified persons, to inquire and certify on the truth of this allegation, and thereon let right be done in the Court of Chancery.*

In this we have evidence of the abuses committed by the small mesh in the cod end of the trawl net 500 years ago, just as we find it at the present time; and although we have no actual proof that these destructive engines, "made after the fashion of a drag for oysters," were there and then suppressed by the authorities, it is more than probable they met the fate they merited, for if they continued in use we would have heard more about them.

* Item suppliont voz ditz Communes, q̃ come en plusours lieux deinz v̄re dite Roialme, en Crekys & Havenes de la Mier, ou soleyt devant ces heures bone & plentenouse Pecherie estre, a grant profit de la Roialme, laquele en poy est destruit & nientys pur long temps a venir, par ascuns Pęschours qi ont a ore a sept ans passez de novel sutielment controve une manere de Instrument q̃ entre eux est appelle Wondyrchoun, fait en la manere d'une drag pur oistres, lequele est outre mesure long: Sur quel Instrument est attache une Ree, si espesse q̃ nulle manere de Pesson, ja soit si petit noun, q̃ entre dedeins ne poet outre passer, einz covient demurrer & estre pris. Et outre ce, le feer grant & long du dit Wondyrchoun voet si owelment & durement desur la

In the reign of James I. I find very strict measures were enforced for the suppression of the use of the illegal nets then employed by fishermen in trawling off our coasts.

For example: on April 13, 1619, the Mayor of Rye wrote to Lord Zouche, who as Warden of the Cinque Ports was *ex officio* in fishery jurisdiction and affiliated to the Admiralty, announcing that certain fishermen were taken off that part of the coast for fishing with unlawful nets. Similar proceedings occurring from time to time produced such beneficial results that I find on the 27th February, 1621, the Mayor of Rye again writes to his lordship conveying to him the thanks of the fishermen of that port for his action in directing the suppression of unlawful nets. I could quote similar cases, all round the coast, proving that the fisher-

terre ent pechant, q'il desturit la slym crascete & flurs de la terre desouz la eawe illeoges; & auxint le spat des oistres, musklys, & d'autres Pessons, p'ount les grantz Pessons soleient vivere & illeoq̃s estre murriz. Par lesqueles Instrumentz appellez Wondirchouns en plusours lieux sus ditz ent p'nount les sus ditz Peschours si grant plente des petitz Pessons sus ditz, q'ils ne savent de se q̃ faire, mes de ce annuelment pascent lour porcs & les encrascent tut outre; a grant damage de tout la Commune de Roialme, & en destruction des Pescheries en lieux semblables. Dont ils priont remedie.

*Responsio.*—Soi Commission fait as certeins sussistantz gentz d'enquere & certifier de la verite du fait; & ceo ent soit droit fait en la Chancellerie—*Rotuli Parliamentorum ut et Petitiones, et Placita in Parliamento.* Vol. ii. p. 369*a*.

men, as a rule, were up in arms against the abuses caused by small mesh nets. The Mayor of Hythe wrote to Lord Zouche, March 7th, 1622, complaining that the fishermen of Rochester and Stroud who were trawling off that port with illegal nets, resisted his interference, but would answer any accusations at London, therefore he requests his lordship to take action thereon without delay, adding that his "town is ruined by such proceedings."

In the reign of Charles I. illegal and small mesh nets sometimes used by the French, Dutch, and occasionally by our own fishermen, caused considerable notice; and stringent measures were adopted from time to time to suppress the nuisance.

From a multitude of historical incidences within my knowledge, I will mention one or two cases, to merely indicate the nature of these abuses, the commencement, cause, and effects, and the remedies applied.

In the year 1630, I find Viscount Dorchester, one of the principal Secretaries of State, to whom this great fishery question was entrusted mainly at the King's request, was inundated with petitions from the fishermen on all parts of the coast, complaining of the size of the trawl nets used by some trawlers, and suggestions of various new regulations for correction of abuses in this description of fishing. These I need not minutely recapitulate here; many different opinions were submitted; but all hands admitted that the deterioration of the sea-fishery

was attributable "to the destruction of fry, consequent upon the use of improper nets, both by foreign and English fishermen."

During the Interregnum, we find the Cromwellians following the policy pursued by the cavaliers, with regard to this question; and the good old regulations (whereby the use of the small mesh, and other illegal nets was prohibited) were then enforced by the utmost rigour of the law. And when any illegal nets were found on board any trawler, or in the possession of any fisherman, they were seized, confiscated, and invariably burned. Several instances are preserved among the Admiralty Records formerly kept at Harwich.

Immediately after the Restoration, I find Charles II. and his Ministers of State directing special attention to this question. The mesh of the trawl-net was regulated and fixed at various standards (which it is unnecessary to follow in detail here) from time to time, and other salutary measures of a beneficial nature were enforced.

From the time of James II. to the accession of Queen Anne, I find somewhat similar regulations enforced; and the great increase in the number of trawlers upon the English coast at this time, combined with the quantity and the quality of the fish they caught, proves the wisdom of our predecessors in adhering to the due observance of those salutary measures. And during this period, I find trawling at night, especially in the winter, was of rare

occurrence; and what was of more importance, the boats had not to proceed far out to sea, and in a comparatively short time returned to port, laden with good takes. The wanton destruction of immature fish which we now see every time a trawl-net is heaved on deck, was utterly unknown in those days, and the abuses perpetrated under this head never was prominent until the statutory mesh of the trawl-net was abolished.

## SUGGESTIONS FOR THE FISHERY COMMISSION.

*Reprinted from the* "JOHN O'GROAT JOURNAL," *Thursday, October 4th*, 1877.

SIR,—I beg to bring before the notice of the Fishery Commission now sitting in various parts of Scotland as well as before your readers, the fact that one of the greatest encouragements and helps to the fisheries consists in the knowledge that in the markets to which fish is consigned for sale the stallage and tollage are light, thus giving facilities for easy sale and encouragement to the fisherman to send his catch into every market. I fear that such encouragements are not offered in many markets belonging to Corporative towns. Take for instance that in which I have done a large business for the last twenty-five years, viz., Billingsgate. The Corporation of the City of London have within the last four years rebuilt the market at a great outlay, but have unfortunately cramped the operations of the salesmen by giving them less space than they had before rebuilding in which to do their business, at the same time increasing their rental to the extent of ninepence per superficial foot per week for standing room only. There is also a toll upon the vans which bring fish from the rail, as well as upon

the vessels coming by water. These rentals and tolls have to be taken out of the amount realised by the sale of the fish. These heavy charges amount to nothing less than so many indirect taxes upon the hardy and industrious fishermen. This system is certainly suicidal, and eminently discouraging to a very important branch of industry and should at once have the attention of the Legislature. The Government cannot do too much for the welfare of our fishermen. No seamen such as those who man our fishing boats and smacks of England, Ireland, Scotland, and the smaller British Isles, are to be found in the world. They possess all the characteristics necessary for first-class seamanship, being hardy, industrious, intelligent, and steady. The whole country owes them a debt, and ought to encourage them by providing for them good harbour accommodation, and good markets, as lightly taxed as possible. That which now goes on as taxes, ought as far as possible to be remitted, so as to enable them to build new boats, and thus afford facilities for their taking apprentices, producing the best material for manning the navy and merchant vessels. A great proportion of the fishermen around our coasts belong to the Royal Naval Reserve. This fact alone ought to induce the Government to foster the fisheries in every possible way. But there is another aspect of the question which certainly ought to have great weight in these days of dear meat. At the present prices of pro-

visions generally, but of meat in particular, were it not for the cheap and nutritious food which fish affords, I know not how thousands of poor people would exist. London alone contains four millions of inhabitants, of whom at least three millions are extensive consumers of fish, and were it more abundant and cheaper than it is, as it easily might be if the restrictions were lighter on the trade, much more would be consumed. The poor of the land have every right to insist upon the Government doing its utmost to protect these heroic fishermen, who often, as in the recent collision in the Channel, risk their lives on behalf of their countrymen on the great deep.

It is discouraging in the face of these facts to reflect that there is a great decrease in the trawl and herring fisheries. The Midsummer fishing off Yarmouth and Lowestoft is quite extinct. Twelve or fifteen years ago this fishing used to send some thousands of peds and barrels of herrings to many of our principal towns, and splendid fish they were, but since the spring herring fishery we have seen this valuable and high-class food disappear altogether from our markets. Many other kinds will as surely also disappear unless the Government instead of allowing the small brood and fry to be destroyed by every means and device, prevent their being caught and sold. I would recommend the Commissioners to come often to Billingsgate market at about seven o'clock in the morning, and

judge for themselves if such small fry as is there sold should have ever been caught. I have seen thousands of barrels of sprats half filled with herrings; and *vice versâ* I have seen hundreds of barrels of herrings with one-half the contents not bigger than sprats. Look also at the fish sold here as whitebait. Many would like to see this question as to what whitebait is, tested in some of the large tanks of the Aquarium. Take again the small mackerel from the south coast of England, and the small soles, plaice, and haddocks from several parts of the coast. One box contains as many as would fill four to six at the least if the fish were allowed to grow twelve months longer. How is it these small fry are thus caught and the food of our teeming populations destroyed? I am of opinion that the mesh of the nets for herrings, sprats, mackerel, shrimps, and whitebait and all trawls should be enlarged. This would allow the small fish to escape at all times and seasons. No question there are hundreds of tons of small fish destroyed by the meshes of the nets being smaller than they should be. I think the attention of the Commissioners should chiefly be given to the question whether the size of the mesh of the net should be limited, so that these immature fish which abound in the bays, estuaries, and mouths of our large rivers and shallow waters should thus be enabled to escape more freely than at present. It is plainly seen that our fisheries are on the fall in every kind. There are more boats and

smacks with nets of more considerable length and depth, but the cry is still a falling off, and that cry will still continue until this evil of the small mesh is put an end to, not only on the Scotch coast, but also on the coasts of England and Ireland.

In conclusion, I hope there are no other markets taxed like Billingsgate, which is the principal market for the United Kingdom. I must apologise for occupying so much of your valuable space, and am, Sir, yours, &c.,

EDWARD JEX.

BILLINGSGATE, LONDON, *Sept. 24th*, 1877.

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*Reprinted from the* "FIELD," *April 20th*, 1878.

SIR,—I hope the Sea Fisheries Commission, now sitting at various fishing stations, will be successful in getting the necessary information so as to enable them to lay before the Government the real cause of the falling off in the supply of all kinds of Trawl Fish, an invaluable food of the people. Perhaps a few remarks from one, like myself, who has been a Salesman and Auctioneer, at Billingsgate, London, for twenty-five years, and a Smack Owner for nearly the same period, may be of some service.

Some twenty years ago, a trawler often got as much fish in one night as she now gets in a week, and the fish was much larger and finer. Trunks of Soles were sold then for 15*s*., and Plaice and Had-

docks for 5*s.* per trunk or ped, while last week Soles have made as much as £8 per trunk; Plaice, £1; and Haddock, 15*s.* to 18*s.* per trunk; all other kinds of trawl fish being proportionately high in price. It should be remembered, however, that there are now fully four times the number of vessels employed in the trawl fishery around our coast, and many of them double the size, using much larger nets in accordance with the extra size of the vessel. Notwithstanding all the extra vessels, and the increased size of the nets, we find, in twenty years, a very large falling off in the fisheries, and a very sad thing indeed, this is, for the poor of the country. If the supply of fish was in proportion to what it was twenty years back, we should find it bearing strongly in favour of the purchaser on the price of meat and provisions generally. But with vessels of the finest class, and every means man can use for the capture of fish, we have found it advance so in price that it is no longer the cheap food of the poor and middle classes, and if it continues to do so at a proportionate rate during the next twenty years, it will be a luxury on the rich man's table. I hope, however, that the Commissioners may be enabled by the examination of men who are and have been in the fishery all their lives, to gain such information that the Legislature will take imperative steps at once to check irregular and suicidal fishing, and I trust the trawl nets, at every port, will be examined, and the parts called the "ground" and the

·l" will be taken notice of. Let the Com-
·rs see that, no matter how small the imma-
h may be, there is now no escape for them
.hat part of the net which, no doubt, the fish
· for, so as to escape, but they get to the
·ound" or "cod end," and are smothered by
·r fish, or dross from the bottom which is in the
t, or are drowned by the vessel pulling the net
.rough the water. There is no question that there
re tons of small fish, of scarcely any value as food,
lestroyed every week by the trawl nets; but if the
mesh of the "ground" and "cod end" was the same
size as that of the upper part of the net, the result
would be that a great proportion of these small fish,
which are valueless as food, and now destroyed,
would escape for a time, to be caught again when
matured, as valuable food for the people. Unless
this is done, the state of the fisheries around these
Islands will become seriously less productive year
by year. The size of the Soles, Haddocks, Plaice,
and other fish, which have been sold in this market
for years past, have called aloud for something to be
done to save this valuable and high-class food from
destruction. One trunk often contains as much fish
as would fill three or four if allowed to grow twelve
months longer. Another destroyer of all kinds of
small fish is the "seine net," which is used on many
parts of our coast, and tons of small Turbot, Brills,
Soles, Cod, Skate, and other fish are destroyed
annually by these nets. No question all large

estuaries and mouths of our large rivers and shallow waters abound with small immature fish, and it is time that the destruction should be put an end to by the abolition of the use of such destructive implements. Again, I have information from one of the largest cod salesmen, that there are often sold daily, at one of the largest fishing ports in the kingdom, in the months of July, August, and September, as many as five hundred to one thousand scores of small cod called Spraggs, at threepence and fourpence per score. Is it not time, therefore, that this should cease? Let the Commissioners inquire and they will find a vast quantity of these small fish destroyed all along the Yorkshire, Lincolnshire, Norfolk and Suffolk coasts, and, no doubt, all round the Islands. Now what has become of the trawl fish? No doubt thousands of tons have been destroyed when almost valueless as food upon our own coast, and our vessels have to go considerably farther out to get the great proportion of the trawl fish which now supply our markets. Let the Commissioners ask where the Hull and Grimsby vessels go for their voyages, and also the vessels from Yarmouth, Lowestoft, and Ramsgate, and they will find that they have all to go much farther from home and our coast than formerly, and that a great proportion of our supply is caught nearer the Belgian, Dutch, and German coasts than our own; and again what has become of that valuable food of the people, "the Midsummer Bloater," which came

from Yarmouth and Lowestoft some fifteen years back, and which was formerly sold as low as 3*s.* and 4*s.* per 100, and at other times when first come in, as high as 25*s.* per 100? I have sold 1000 peds in a day as low as above stated. The fish were one mass of flesh and very fat, but during the past ten years, since the vessels from Yarmouth, Gorleston, and Lowestoft have prosecuted the Spring Herring Fishery, we have seen the Midsummer Herring entirely disappear from our markets which formerly came from the above-named ports; and many other kinds will as surely disappear, unless the Government, instead of allowing the small brood and fry to be destroyed by every means and device, prevent their being caught and sold. The mesh of the herring net within the last thirty-five years has had added eight meshes to the yard. I quite believe that without the interference of Government, before many years are past there will be from thirty-six to forty meshes to the yard; thereby enabling the smaller fish to be caught. Formerly this net had, in the old hemp net, twenty-eight meshes to the yard in length and breadth; but about sixteen years ago, the old hemp net was superseded by cotton ones, and since then the number of meshes has been increased, with the additional number of herring boats fully double the former size, and the number of nets formerly employed. Will our herring fisheries around our coast increase? I am afraid not. I question whether the takes of herrings

during the last sixteen years are what they were during the sixteen years prior to the alteration in the size of the meshes, even with the addition of so many fine craft engaged in our fisheries of all kinds. There can be no question that we want the most serious attention of our Government, if this valuable and nutritious food of our teeming populations is to be preserved and protected. The nets employed in catching Whitebait no doubt destroy a vast number of the small brood and fry of nearly all kinds of fish. Let the Commissioners go and see what these nets and the shrimp nets destroy, and they will be surprised. I may here ask what is Whitebait? No question a great proportion of it is the small fry of many sorts of fish. Why not test a quart of this live fry, as caught by this destructive net, in one of the tanks of the Aquarium, and let us see and know what the same is? It will surprise many of the consumers so much, that they will say "no more of this mixture for me."

There is no doubt that by restricting the size of the mesh in all kinds of nets our fisheries will improve, and the fish will become as plentiful as they were twenty years ago, and be a blessing to the poor of this country. I could say more but dare not trespass further on your valuable space.

I am, Sir,

Yours,

EDWARD JEX.

BILLINGSGATE, LONDON, *April 8th*, 1878.

P.S.—Many of our trunks of Soles, which twenty years ago contained forty to sixty pairs, now require, from many ports during a great portion of the year, from one hundred and fifty to two hundred and fifty pairs to fill them; and with Plaice, Haddock, Whiting, and other fish it is the same, particularly with fish caught upon the English coast.

To the preceding communication Mr. E. W. H. Holdsworth, in a letter to the "Field" of May 4th, 1878, took exception to the prices of fish at Billingsgate market as quoted by Mr. Jex; adding that "the only other point in Mr. Jex's letter to which I can now refer is that relating to the size of the mesh in the 'cod end' of the trawl. Had Mr. Jex been a practical fisherman, he would have known that the drag on that part of the net is so great, from the weight of fish and other substances which accumulate there, that the meshes become closed by the strain; and that if they were made three times as large as they are now, they would still be drawn close and straight. If, therefore, an enlargement of the mesh would allow any fish to escape, it would not be the small fry, but fish of such a size as would have strength to burrow their way between the tightly-stretched and approximated sides of the meshes."

(Signed) E. W. H. HOLDSWORTH.

To which Mr. Jex replied as follows:—

*From the* "FIELD," *May 11th*, 1878.

## *The Sea Fisheries.*

SIR,—In reply to the letter of your correspondent Mr. E. H. Holdsworth, which appeared in your issue of the 4th instant, I beg to say that I am in a position to prove the accuracy of my statement as to the high prices I have made for fish.

Whether I am to be congratulated or not is a matter of opinion for others. I certainly should prefer selling more fish at lower rates, and have the satisfaction of knowing that the best was being made of a great and, if properly tended, inexhaustible food supply for the masses.

Mr. Holdsworth will, however, in justice to myself, perhaps permit me to say that, whether I make £1 or £8 per trunk of soles, in common with other salesmen, I get no more than a fixed commission of 5 per cent. for my trouble.

Mr. Holdsworth states, in the letter alluded to above, "that the inference he (meaning myself) wishes to be drawn from his statement is that trawl fish have become scarce; and the prices he quotes are the natural result of the scarcity." I may frankly state that Mr. Holdsworth has arrived at a correct conclusion as to what I intended my former letter to convey. I did wish that inference to be drawn. Indeed, I think "inference" or "drawing" are hardly the right words, for I stated pretty distinctly that such was the fact, and backed up my

statement with facts and figures, which I maintain neither Mr. Holdsworth nor any one else can contradict. I still assert that high prices are the result of scarcity of supplies and the increasing demand from an increasing population in the metropolis and in the large towns and cities throughout the country. The paucity of supplies, I contend, is the result of the decrease in the "catches" of all kinds of matured trawl fish around the British coast. The prices which Mr. Holdsworth quotes as having been given him by a firm in Hull, may be perfectly correct, but are not, I can assure you, to be taken as the generally prevailing prices, and are therefore valueless. As disproving the statements as to the increase in prices of fish during the last twenty years, any experienced salesman or merchant will coincide with me, when I say that the prices quoted by Mr. Holdsworth are exceptionally low, and were most probably supplied to him at a time when there was a very heavy supply of trawl fish at the port he mentions. These heavy supplies, too, are not always of the best quality; indeed, I question very often, when these heavy supplies come in, whether much of the fish sold is fit for human food, in consequence of the time the vessels, from various causes, have been getting into port. The prices quoted for haddocks in November namely, 1*s.* to 3*s.* per kit of ten stone, I should think, must have been in a bad state, not in a fit condition to travel to London, or any of the provincial markets. Moreover, I should like the public

to know how many days in the year fish is sold at Hull, or any other port on the English coast, at the prices quoted by Mr. Holdsworth's informant. On the other hand, I am in a position to prove, by the examination of my books, or those of any other fish salesman, for the last twenty years, that, during that period there has been a great increase in the price of trawl fish; let any one visit Billingsgate Market regularly, where fish is sold by public auction by salesmen to the highest bidder, and he will find that nine months out of twelve trawl fish realise three times the amount for which they were sold twelve years since.

With reference to Mr. Holdsworth's remarks upon the New Billingsgate Market, I beg to state that he is perfectly correct when he says that the market is double the size of the old one. But I would bring to your correspondent's notice the fact, that one half the space of the market, namely the basement floor, was found, after a few months' trial, to be utterly useless, both for the public and the trade, being over twenty feet below the level of Thames-street. The ground floor is of little larger area than the old market; but within the last few years, several new salesmen and retailers have commenced business, and they all require space. The result is, that, after so large an expenditure by the Corporation, the trade has to be conducted on the ground floor, and the salesmen have less space in which to do their business than they had in the

old market, having to put up with less accommodation. The tolls upon the fish brought by vessels and by vans still exist, in addition to a rental of treble the amount it was in the old market. It will therefore, be clearly seen that these heavy charges, which are nothing more nor less than an indirect tax upon the fish food of the unfortunate London public, tend to enhance the price of fish. I may state parenthetically, that I think this is another argument proving that the Board of Trade should have all the control of all the food markets in the metropolis. They have no other object to serve than the benefit of the public, while such a body as the Corporation of the City of London has, as its primary aim, the improvement of its revenues at the expense of the public. Let any of your readers look at the last returns of the Billingsgate market for a confirmation of this statement.

Let us now go back to the size of the mesh. I would beg Mr. Holdsworth in future to bear in mind that on these points I speak from actual personal experience. If Mr. Holdsworth had been a practical fisherman he would not have laid before the trade such a theory as that started in his letter. We who are practical fishermen as well as salesmen know its utter fallacy; but the public might be moled by such specious argument. He says that if the meshes were made three times as large, they would still be drawn close and straight; and if, therefore, an enlargement of the mesh would allow any sized

fish to escape, it would not be the small fry. There can be no question that when there is a strain upon the net, the meshes, to a certain degree, will be drawn closer than when there is no strain upon it. But, on the other hand, when the vessel keeps "giving" by the roll of the sea, this, combined with the pitching of the vessel, will cause a give in the strain upon the net, whereby every mesh relaxes and opens. I must contend and maintain, and I am prepared to prove, that the greater proportion of the small fry and immature fish, which are now smothered by the accumulation of dross and other rubbish in the cod end, would have a greater chance of escaping through the mesh in that particular part of the net if the mesh were made twice the size of that now used. The mesh of the cod end at present is one inch and a quarter; it must, consequently, be apparent to any common-sense person that the fry and immature fish would have a better chance of getting through an aperture two and a half inches in diameter than through one of the size stated above, which is now used. There can be no plainer proof of this than that which is seen at this market during fully six months of the year. If Mr. Holdsworth or any one else—Government Inspectors in particular—were to come and see for themselves the small immature fish caught by fishermen around our coast, and sent to this market for sale, I am sure they would say it was a shameful waste that prospective valuable food of our multitudes should thus

be destroyed before matured. No doubt the small fry and immature fish have no end of enemies besides the cod end of the trawl net. The struggle for existence on the part of the finny tribes must now be a severe one. The Shrimp, Whitebait, Sprat, and seine nets, besides their natural enemies, are terribly destructive to the small, immature fish of all kinds. I contend that it is time the Government did something to protect this valuable and nutritious food of the people.

Now let me offer a few practical suggestions to remedy this. No close time is wanted, but the mesh of the net, if a sufficient size, will act as a close time, and will be a benefit, not only to the consumer, but, in a short time, to the catcher. I would like also to see a law passed rendering any man who caught and consigned to any market for sale, fish under a certain size, liable to be fined in the same way as is provided by the Oyster, Crab, and Lobster Act of 1877. These restrictions would improve the trawl fisheries around these islands, and no doubt they would become upon our coast as prolific as they were twenty years ago. But this desirable end will not be accomplished until something is done by the Government in the direction I have intimated, for year by year the trawl fisheries on the English coast are going from bad to worse. We find the vessels, in many cases double the size they were fifteen years ago, carry destructive nets; and the depopulation of the fishing grounds, where large cargoes of prime

fish were caught a few years back, necessitates the vessels going farther from our English ports, even as far as below Horn Keef, on the coast of Jutland. No doubt the destruction of the small immature fish upon our own coast is now being followed by the same calamity on the Dutch and German coast. One result of vessels having to go so far to catch fish is that if they get a head wind or a calm, a large part of their otherwise valuable cargo is spoiled before it can reach the market, which is confessedly a most serious loss to the public as well as the fishermen. Vessels fishing with a fleet supplied with steam carriers, can always make sure of their market, but there are so many fleets of smacks with no steam carriers. Many vessels, also, fish by themselves, or, as it is technically called, "single boating," and it is these latter vessels which in summer-time are often obliged to lose a great proportion of the value of their fish, in consequence of the deterioration in the quality of the fish, owing to its being so long reaching their markets after the first catch on the trip.

EDWARD JEX.

[In the matters of the mischief done by the smothering of immature fish in the rubbish collected in the cod end of trunk nets, and the shameful destruction caused by sending fish so small that it is wonderful how the salesmen find customers for them, we can quite back the statement and argument of Mr. Jex. We also speak from practical experience,

and we assert confidently that if the mesh of the cod end of the trawl net was twice the size it is, it would let nothing through but what ought to go through. Six-inch soles are a disgrace to any market, and it is a great pity that the sizes laid down in the 1st of Geo. I. were ever repealed, for they will surely have to be reimposed.—ED.]

In the "Field" of May, 1878, a letter from Mr. Holdsworth appeared in which, among other disputed points, the writer expressed his opinion that the "give" caused by the rolling and pitching of the trawler would not cause the meshes in the cod-end of the net to relax sufficiently to admit the escape of the immature fish; to which Mr. Jex replied as follows:—

*From the* "FIELD," *May 25th*, 1878.

*The Sea Fisheries.*

SIR,—I am glad to find that Mr. Holdsworth does not doubt the accuracy of my quotation of the price obtained at Billingsgate for fish. I still maintain that trawl fish realises on the average three times the money which it did twelve years ago in London; and I believe all the provincial markets and fishing ports on the coast are, more or less, influenced thereby. The accuracy of my figures having been proved, I think that my first point, the enhanced value of fish generally, is thoroughly made out. It may be true that there are occasional times

when prices are much lower than those I have quoted, but that is due to such exceptional instances as a heavy supply from different parts of the coast, owing to circumstances well known to practical fishermen; but, on the average, the supply per vessel is much less than it was a few years ago. If low prices do prevail, either in London or elsewhere, it is only during a very short portion of the year, and is owing to almost accidental circumstances to which I have alluded. When we remember that the vessels are nearly twice as costly, that they have to go double and even treble the distance they had twelve years since, that the average catch per vessel is not anything like that which it formerly was in bulk, and that a great proportion even of that which is caught is small immature fish, I think my second point—that the fishing grounds are not so productive, and that the supply is falling off—is established. These facts to which I have alluded mean increased risk on the part of smack owners and fishermen, both of capital and life, and vastly increased labour and anxiety in all branches connected with the fishing trade; yet your correspondent would have the world believe the business of smack ownership and fish salesmen to be a very "good thing." From practical experience I should not recommend any of his friends to go into the trade unless he can make a contract with some smack owner or merchant to supply him all the year round with a good supply of trawl fish, of good quality, at the prices quoted in

his previous letter. He might then do well by selling the same in any market during the year. If, however, he inquires into the state of the trade in London and neighbourhood, he will hear but a poor account of it; and I fear it is not much better at any of our fishing ports. The smack owners complain that the cost of building and fitting the vessel is very heavy, that the working is expensive; that, as I have before intimated, they have to take, compared with former years, very long trips, and the takes are so small as to render it a very precarious business. The salesmen aver that the expenses to which they are put are so heavy that they have difficulty in meeting them, and that, notwithstanding the enhanced prices of fish, their profits are smaller than they were formerly, in consequence of the great competition and decreased supply.

Some of the salesmen I know formerly got more fish in one day than they now get in a whole week; and, although no doubt Mr. Holdsworth imagines that he has discovered a weak place in the arguments advanced in my last letter, he will at once see that it is more profitable for me to have five per cent. on twelve trucks at £3 than on three at £8. I have, moreover, the satisfaction of knowing, when I have a large supply of good fish at a low price, that cheap, nutritious food is being supplied to the public. What I state here with reference to the state of the trade are not mere assertions, but facts, based upon personal experience.

And now, coming to that point of his letter in which of course I am naturally much interested, the relative areas and convenience of the old and new Billingsgate markets, your correspondent seeks to make out that the old market was not large enough for the business, and that the new one offers on the ground-floor for the accommodation of salesmen an area at least one-half larger than did the old market. I maintain that such is not the fact, and that the wholesale men have very little more accommodation than they had in the old market, which I think was of dimensions adequate to the wants of the salesmen and gave them greater accommodation than the new building affords, the only advantage of which seems to be an addition to the architecture of the city. Moreover, were the actual accommodation greater, it is more than counterbalanced by the heavy tolls and stallage which are levied on all hands. And here again is another reason for the enhanced price of fish in the metropolis. The merchants and salesmen must, if heavy tolls are levied, raise the price of fish to the public, who are, therefore, paying not for the fish, but for the building in which it is sold; and what ought to be a cheap food for the multitude is thus placed beyond their reach, in consequence of their inability to pay high prices. We all know that no trade can develop fully under the benumbing effects of heavy taxation; and, in my opinion, instead of levying heavy dues to pay for mere architecture, we ought to encourage the fisher-

men to bring their fish to Billingsgate by making the tolls as light as possible, and, if we have public money to spend, spend it not on the mere ornamentation of the market building, but on the improvement of the approaches, and widening the streets leading up to it, so that there might not be that chronic congestion of traffic which we now have in the neighbourhood of Billingsgate. I need not here point out the stunting effects of this heavy taxation will not only discourage speculation and adventure on the part of the fishermen, but, as a consequence of that, will diminish the supply of first-class seamen from one of the best training grounds in the world. A stunted trade means a smaller number of vessels and fewer apprentices, and, as a consequence, a smaller number of splendid seamen to recruit the ranks of the Naval Reserve, which I am proud to say hundreds of these heroic fishermen belong to, and are ready to serve their Queen and country at the shortest notice. Then it should be the aim of the Government to provide them at all times with markets and good harbours, as little taxed as possible.

And now, coming to what I hold to be the most important—the all-important—point in these letters, the size of the mesh of the cod end of the net, I can only corroborate and reiterate what experience has taught me, and what I have so frequently laid before the trade and the public. In consequence of the very small mesh, 1¼in., dross accumulates on

the cod end, and multitudes of immature fish, which would escape out of a net of larger mesh, are smothered. Does Mr. Holdsworth's experience on board trawlers teach him that? I could, I think, bring plenty of fishermen equally as practical as those with whom Mr. Holdsworth conversed, who would support my statement as to the effect of the small mesh at the cod end. I maintain that if the meshes were 2½in. in diameter, there would not be that accumulation of dross, and the small fish would escape. I need scarcely point out the absurdity of an argument which maintains that a hole 1¼in. affords the same facilities for escape as one of 2½in. Mr. Holdsworth must know, unless mere theories have blinded him, even with a strain upon it, a large mesh offers more facilities for escape than a smaller one. The strain upon the cod end and ground, to which your correspondent alludes, is no doubt caused by the mesh of the net being so small that it prevents the escape of what ought to pass through, and which would pass through, were the meshes larger. With larger meshes there would be less wear and strain on this portion of the net than there is with the small mesh, which, in consequence of its great weight, and of its being towed over so much ground, requires the rubbing pieces, to keep that part of the net from chafing through with the immense weight it contains, much of which is valuable young fish, prematurely caught and killed, but which, if it had been at liberty a few months longer, would have

yielded five times the weight of food, and might probably have also added to the number of its species. I will not here again enter my protest against the number of small fry. I last week saw soles of from three to six inches long caught near and landed and sold at Gravesend, I am informed by the bushel, and other kinds of fish in the same immature state are subject to the same practice. I sent last week a sample of the soles to Mr. F. T. Buckland, Government Inspector of Fisheries, for his inspection. I ask, is it not a shame that a stop is not put to this wanton destruction? The Government would do well for the interests of the people were they to take measures to prohibit small fish of every kind being caught and sold; and it would be wise of the Legislature to sternly prohibit the use around our coasts of nets with meshes under certain sizes. All then would be alike, and individual example unnecessary. I must, in justice to myself, here inform your correspondent that I do not work any vessels in which I have an interest. The advantages of a successful voyage, therefore, go to those who work them. My individual advantage is consequently confined to the commission on what I sell; and I should like to see this valuable source of food protected, and for the fishermen to see it as plentiful upon our own coast as it was twenty years ago, which can never be so long as the small immature fish are destroyed. If these practices to which I have alluded are continued, where is the

matured fish food to come from? It must become scarce, and we know on the English coast scarcity is becoming very apparent. I would ask your correspondent to bear in mind the statement in my last letter, that the vessels which now supply our markets with trawl fish are compelled for the most part to go double and treble the distance from our shores to procure this supply, and I fear the like diminution will, in a short time, occur on the coast of Holland and Germany. I hope the Government will not let it go too far before this is stopped, but will see the small immature fish of all kinds protected.

Increase the size of the meshes in the cod end of the trawl net; and, for the reasons I have stated, in a few months, we shall find the catch of matured fish more abundant on many of the now almost depopulated fishing grounds. This would indeed be a blessing to the poor of this country, as a good supply of fish not only influences the price of meat, but provisions generally; and, with food at the present prices, it behoves the people to ask Government to protect our fisheries, and do all they possibly can to supply us with food at the lowest rate. Small, immature fish are a disgrace to any market. Soles, for instance, should never be sold under 9 in., and all other fish in proportion; otherwise we are simply taking fish in its most unprofitable state as an article of food.

As this correspondence cannot with advantage be further prolonged, it is advisable, I think, to place

clearly before your readers the points at issue between Mr. Holdsworth and myself.

1. Mr. Holdsworth asserts generally that because more vessels are engaged in the trade, and because Billingsgate Market is enlarged, therefore the supply of trawl fish is on the increase, and that it is consequently cheap. He supports this proposition by a statement as to the prices realised at Hull. My answer is this, that the vessels engaged in the trade are compelled, at increased risks, to travel twice or three times the distance they formerly did to catch any considerable quantity of fish at all; that the increased distance renders the supply intermittent; that the fish caught are not equal in quality to those formerly secured on our coast; and that, notwithstanding the increased labour and risk, the supply is not equal per vessel to that, say, of twelve years since—consequently trawl fish is fully three times as dear as it was at that time. I also further argue that the prices quoted for November last at Hull were too exceptional to be of any value in this controversy.

2. Mr. Holdsworth argues that the present size (1¼ inches) of the mesh of the cod end of the net has not had, and will not have, any material effect on our supply. To this I reply (and I am supported by facts and experience) that largely to this cause must be attributed the lamentable scarceness of trawl fish on our coast. If some remedy is not speedily applied, this relative scarcity, now so power-

fully felt, will be so much increased as to render trawl fishing on our English coast an absolutely unprofitable trade. The remedy which I suggest for the earnest consideration of all who are interested is in itself simple and easy of application, namely, to enforce on all trawl fishermen a cod end of the net of not less than 2½ inches mesh.

EDWARD JEX,

BILLINGSGATE, LONDON. *Auctioneer and Fish Salesman.*

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*Reprinted from the* "FIELD," *June 22nd*, 1878.

SIR,—From some experience in the discussion of the state of our sea fisheries, I have before now come to the conclusion that it may be carried to almost any length without much practical advantage; and I would willingly leave Mr. Jex in possession of the field, if I were not now able to furnish him with some particulars about the prices at Hull for trawl fish, and to give him my authority for what I have said, and now say, on that point.

I would first mention that March, 1878, instead of November, 1877, was the time when haddocks were sold at 1*s.* per kit at Hull. In November the price did not go below 3*s.* The haddocks on both occasions were good marketable fish, and the low prices were solely owing to the abundance brought in. The smacks seem to have "struck" large bodies of fish, and, as the weather was at the time very favourable for trawling, large catches were made. I

have permission to give the well-known names of Vivian and Toozes, salesmen and smack owners at Hull, as my authorities for the low prices I have quoted—prices which they say are, fortunately for them, exceptional, just as £8 per trunk for soles is, in my belief, exceptional at Billingsgate: a question on which so much of the value of Mr. Jex's argument depends, but to which he will not reply. Messrs. Vivian and Toozes have sent me a long list of prices at which soles and other prime fish, plaice, and haddocks were sold at Hull in October and November, 1877, and February, March, April, and May this year. There is considerable variation in prices at times, so that it is difficult to give a fair average for any number of days or weeks. The nearest approach to regularity of prices was between the 13th of April and the 15th of May, and then the general price for soles and other prime fish ranged from £2 to £2 10*s.* per box of eight stones. The lowest price was 30*s.*, and the highest (only on one occasion) 65*s.* Plaice and haddocks during the same period ranged from 5*s.* to 13*s.* 6*d.* per box of six or seven stones, and the general prices for these fish were from 6*s.* 6*d.* to 9*s.*

Will Mr. Jex give me the Billingsgate prices for these fish during the same period? I can quite believe that he would rather not do so; for if they should prove to be anything like Hull prices, it will show that he has been quoting unusually high figures in support of his contention that trawl fish have become

very scarce generally, or that Billingsgate prices are much above those at other places, and therefore cannot fairly be used as evidence of the fish having decreased in the way he says it has.

There is another point I must refer to. Smack owners are the persons who can give the best information about all that relates to the working of the trawl system; they know all about the cost of vessels and working expenses, what the catches are, and the profits or losses. Mr. Jex told us in his first letter that he had been a smack owner for nearly twenty-five years; he wrote therefore with some appearance of authority. He now says: "I do not work any vessels in which I have an interest. The advantages of a successful voyage, therefore, go to those who work them." I have no right or wish to pry into Mr. Jex's affairs, but I must say it is a new experience to me to meet with a real smack owner who gains no advantage from the success of his vessels.

Mr. Jex has a fluent pen, but I think it sometimes runs away with him, and that he forgets that many of the observations he makes with all the appearance of authority are really nothing more than his opinions or belief, and are therefore quite open to question. I do not think my criticism of his first letter was altogether uncalled for; nor is it quite clear to me that it has been answered, although Mr. Jex has such a happy way of considering his case proved. However, I need say nothing more about his letters, as I should only have to repeat what has already

appeared, except that I have not contended that fish must necessarily be cheap because so many vessels are at work; for the fact is, that the demand for it has been constantly increasing all over the country, as it was when Mr. Jex gave his evidence fifteen years ago before the Royal Commission. He then said: "There has been an increase in the customers, as there has been an increase in the population. The demand is increasing faster than we can get the fish." I may add that the export of trawl fish to the Continent is far greater than is commonly supposed. Mr. Jex could, no doubt, give us some idea of the average quantity sent every month to Paris by way of Folkestone and Dover—the former, I believe, being the port from which most of it is shipped. But the foreign demand is not confined to Paris, and in 1876 an export trade in fresh fish was begun from Grimsby to supply other parts of the Continent, resulting in 3,705 tons of it being sent away in 1877, and most of it to Rotterdam. The quantity of fish sent inland by railway from Grimsby has increased from 19,416 tons in 1867 to 44,376 tons in 1877. I would ask Mr. Jex to bear in mind that these figures are not estimates, but official records of the quantities actually sent away by train.

E. W. H. HOLDSWORTH.

In answer to the preceding letter Mr. Jex wrote to the Editor of the "Field" as follows:—

SIR,—I am pleased to find in your last edition, that your correspondent Mr. Holdsworth has some sort of a reply for me after four weeks' delay. It is evident the information he has been enabled to get after the lapse of so long a period must be second-hand. What I have before stated I can only reiterate and I am prepared to prove from personal experience that the statements I made are not mere theories, but facts founded upon incontrovertible data.

Mr. Holdsworth quotes prices sent him from Hull. I hope he does not expect the fish-eating public of London to believe that they have to depend either upon the fishermen of Hull or Grimsby to supply the metropolis with trawl fish. If they did, for the greater portion of the year they would be on much shorter allowance than they are at present. Your correspondent states that from the two above-named ports large quantities of fish are consigned to the inland markets and the continent. This I believe to be quite true, but your correspondent must know or I must tell him if he does not (though I think he does) that there are hundreds of vessels at Ramsgate, Lowestoft, Gorleston, and Great Yarmouth, which fish all the year round, and I may say that fully eighty per cent. of the fish caught by the vessels from these ports come to the London market without intermission throughout the year.

I can also inform your correspondent that upon the average the fish from the vessels of the last-named ports will make one time with another fully 20 per cent. more in this market than the trawl fish from Hull and Grimsby. No doubt your correspondent will be surprised and ask how that is? The difference, allow me to say, is simply the quality and condition of the article. The prices quoted second-hand but in good faith by your correspondent are from April 13th to May 15th, 1878, and are as follows: soles per trunk, lowest price 30*s.* and highest 65*s.*, plaice and haddocks 5*s.* to 13*s.* 6*d.* per trunk. Now, sir, contrast those prices with those I quoted: the prices for which I sold soles and plaice from April 13th to May 15th, 1866, were April 14th, soles average 30*s.* and plaice 13*s.* per trunk. April 20th, soles 25*s.*, plaice 6*s.* April 27th, soles 16*s.* 6*d.*, plaice 4*s.* 6*d.* May 4th, soles 35*s.*, plaice 12*s.* May 11th, soles 20*s.*, plaice 9*s.* If I go back to the time named in my letter of April 8th, and fearlessly assert that for 20 years the prices were considerably lower, your readers will see that my statements of that fish on the average, make three times the price now that it did 20 years ago, are perfectly correct. I think your readers will naturally infer from the above figures that my statements are fully maintained. As the present market prices may be interesting to the general public as well as to your correspondent, I give them for the two months in the year (which are the same months of this year as

prices quoted by Mr. Holdsworth) in which we generally look for trawl fish to be at the lowest prices. This applies specially to the month of May; the prices returned by myself to several consignees, a week intervening between each, were as follows:— April 1st, soles £5 to £6, and plaice 12*s.* to 15*s.* per trunk. April 6th, soles £5 to £6, plaice 17*s.* to 19*s.* April 13th, soles £3 10*s.* to £4, plaice 14*s.* to 16*s.* April 19th, soles £6 to £7, plaice £1. April 27th, soles £3 5*s.* to £3 15*s.*, plaice 9*s.* to 13*s.* May 4th, soles £4 to £5, plaice 18*s.* to 21*s.* May 11th, soles £2, plaice 12*s.* to 16*s.* May 18th, soles 30*s.* to 35*s.*, plaice 12*s.* to 16*s.* May 25th, soles 30*s.* to 40*s.*, plaice 10*s.* to 14*s.* May 30th, soles 30*s.* to 35*s.*, plaice 14*s.* to 18*s.* per trunk.

I ask if these prices do not prove that trawl fish makes near three times the price it did 12 years ago? Your correspondent would perhaps be surprised if I told him that on the 21st of June last week I returned to some of my consignees £4 per trunk for soles and 26*s.* for plaice, and this day for soles £6 to £8 and for plaice 25*s.* to 30*s.* per trunk. The first letter I wrote was on one of those days which Mr. Holdsworth calls exceptional, but soles made as high as £10 and £12 a trunk here on some days in the last year and were no doubt exceptional. Do they not however prove that I am right and that my statements are facts? When I wrote I quoted the London prices where I was doing my business, *in a vastly increasing population.* Do not these

figures also corroborate my statements before the Royal Commission 15 years ago? I maintain that everything should be done to provide the masses of the people with this nutritious food at as low a price as possible. I do not doubt the accuracy of the prices quoted as having ruled at Hull and obtained by your correspondent from his informants, but he must bear in mind what I say in the former part of this letter about the quality and condition of the fish. Not being in the export trade I cannot give, with the accuracy I should wish, to your correspondent, the information as to the quantity of fish sent to the Continent from this market. Mr. Holdsworth says I have a fluent pen, but I rather regret to say if it has run away it has not led me into the realms of fancy or fiction, but of truth, and only the truth; on this subject, my statements are no theories founded on information gathered from others, they are facts coming under my own personal observation both at sea while trawling for an honest living and ashore, as I hope, an honest salesman. Mr. Holdsworth's mind seems to be a little cloudy as to whom among those interested in the smacks get the benefits of heavy catches and exceptional high prices. I can readily dispel the mist without inflicting on Mr. Holdsworth any new experience. If he refers to the books of the Board of Trade he will there see that the *real owners* for the purpose of profit are those on the Registers, and it will be no new experience to your enlightened contributor

to know that the mortgagees of vessels are like other mortgagees, and can but receive the interest reserved — in the mortgage deeds. It may, however, be a new fact for Mr. Holdsworth to learn that this interest ranges from five to six per cent. per annum and in some isolated cases reaches seven per cent. I hope this will clear the fog respecting my smack-ownership from your correspondent's troubled mind. I hope the inquiry held by the Inspectors of Fisheries at Gravesend last week will prove by the evidence obtained from old and true fishermen that my object is right in the main, and will tend to be a service to the gentlemen to whom they gave such valuable information; it was there stated that tons of small immature fish are frequently caught in one day and sold for manure, is it not time that the destruction of all kinds of immature fish should be prohibited and so protected and matured as to become valuable food? I hope the Government will look into and regulate the size of the mesh of every kind of net made and used for the capture of all kinds of sea fish around these Islands. Then we should in a short time see our once prolific fishing grounds upon the English coast —now deserted by fish—once more as productive of good food for the people of this country—as they were twenty years ago.

BILLINGSGATE, LONDON, *June 25th*, 1878. EDWARD JEX.

*From* "LAND AND WATER," *November 30th*, 1878.

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## *Mesh of Nets for Deep-sea Trawlers.*

"I HAVE received the following from Mr. Jex.—F. Buckland:—"

"In answer to yours of the 16th instant, as to the idea of how the mesh of the ground and the cod-end of the trawl-net is to be kept open when the net is on the ground fishing, I beg most respectfully to refer you to a letter written by myself and published in the "Field" of 11th of May, from which I take the following passage:—'There can be no question that when there is a strain upon the trawl warp, and bridles, and the net, the meshes to a certain degree will be drawn closer than when there is no strain upon them. But, on the other hand, when the vessel keeps giving by the roll of the sea, this, combined with the pitching of the vessel, will cause a give on the strain upon the trawl warp and bridles, whereby every mesh in the net relaxes and opens.' And I may add, since that letter was published I have conversed with men that are owners of from two to six vessels each from the ports of Ramsgate, Lowestoft, Gorleston, and Great Yarmouth, and they are of the same opinion as I have stated—that is, if the meshes of the ground and the cod-end were two and a-half inches from knot to knot, that the great proportion of the small fish now destroyed would escape for a time, to be caught when matured

as valuable food for the vastly increasing population of this kingdom, and giving greater facilities for the escape of the accumulated dross in that part of the net. But what do the fishermen say? They are afraid if the mesh was two and a-half inches that they would not catch near the quantity they do now, and my reply to that is, 'A good job!' Half of it never ought to be caught or destroyed in the manner it is by them. The result would be that which they did catch with the increased size of the mesh would make up in value for the time in the possible shortness of the catch, and in the increased size and weight of the fish. But let us see what the returns would be after, say, the first twelvemonth. No question the catches would be greatly increased by the matured fish which had escaped through the two and a-half inch mesh, and would no doubt have been destroyed by the present cod end of net now used, which is one inch and a-quarter, and in some cases one inch and a-half. It would prove to the fishermen, smack owners, and the public, that the net now in use is the great evil for so much prospective food being destroyed.

"No question if the Commissioners of the Sea Fisheries sat and examined any body of fishermen, let it be where it may, they will say the least they can to prove that anything they use is injurious to any particular branch of the fishery they may be mostly engaged in, and they will protect themselves from any interference on the part of the Legislature;

but I must say, which I maintain to be right in the interests of the fishermen and the public, that the Commissioners appointed by the Government to look after the fisheries should come and see at the great emporium, Billingsgate Market, for all kinds of fish caught by the seine, drift, trawl, and other nets, and consigned to salesmen for sale, and for them to see if a great proportion of it which comes there daily should have been caught in its small unsaleable size. The inspectors would see and know more by attending this market once or twice a week about seven o'clock in the morning, than they will by travelling round to different parts of the coast for as many years; for here they will have ocular demonstration of what is caught, destroyed, and sent to market. It is all nonsense to talk or tell us what fishermen say about the mesh of the net: "If it were double the size it would be drawn straight." That may do for some, but not for me, or any right-minded person. But if it should be so, and the fishermen are correct, then it cannot make any difference if the mesh is the size I state—two and a-half inches or even three inches—if it is drawn so tight, as you have been informed, that nothing can escape, however small, on account of the mesh being drawn straight, let it be what size it may. If you would like to test the statements of the fishermen, propose a three or four-inch mesh to them, and you will at once see how quickly they will recede from their position that the size of the

mesh makes no difference. I can see no objection for them to use such nets, or for the Legislature to compel them to use the size mesh I name, both in small and large trawlers. Whether fishing in-shore, or any number of miles from the land, I would make no difference in the size of the mesh. No question there are hundreds, and I think I may fairly say thousands, of tons of small immature fish destroyed by the use of the seine net and the shrimp boats and small trawlers in the bays, estuaries, and the mouths of all large rivers around these islands. There can be but one opinion of the fact that these are the breeding grounds and nurseries for the small immature fish of all kinds, and which are destroyed, as I have here pointed out, before they become of any value as food. I am very sorry to see such a falling off in the herring fisheries at Yarmouth and Lowestoft. It's a sad thing for the poor of this country at the present time of the heavy depression of trade. Can you give me any information what has become of the native English pont-herring that were caught in large quantities a few years back, during mid-winter, by the fishermen at Boston, Lynn, Harwich, and Maldon? During the last few years since such heavy quantities of whitebait have been taken, this fish food appears to have quite disappeared from the ports I have named, and altogether from our coast, clearly proving that whitebait is no other than the small fry of the herring, sprat, and other fish, and the sooner the Legislature

prohibit and prosecute all offenders, the better it will be for the community at large. I hope your most serious attention will be given to the spring herring fishery carried on at Lowestoft, Gorleston, and Great Yarmouth, and also to the mesh used in all descriptions of nets and in all branches of this important question, and to this useful food supply of all Her Majesty's subjects."

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*From* "LAND AND WATER," *January 4th*, 1879.

### *The Herring and Trawl Fisheries.*

I AM very pleased to find a gentleman like Mr. R. R. B. Norman, of Great Yarmouth, speaking up in truth in your last edition upon this all-important subject—the preservation of the fish food of both rich and poor—and directing the attention of the members of Her Majesty's Government and the Inspectors of Fisheries to the direct cause of the falling off in both herring and the trawl fisheries around these islands. The herring and trawl net fishing requires serious attention; but while the present size mesh is allowed to be used in all kinds of trawl, drift, seine, and stake nets, you will find the fisheries will go from bad (which they are) to much worse. There are but few smack, ketch, yawl, dandy, or lugger owners engaged in the herring, trawl, mackerel, or any other fisheries that can say their craft have earned what they should

have done to pay them for the amount of money at risk, anxiety, and great trouble. Hundreds of these splendid vessels are not earning the interest on the enormous outlay. The vessels engaged and built for the trawl fisheries in the North Sea at the present day cost from £1,100 to £1,500 each, and many at some ports above the highest of my quotations, when all on board and fit for sea. No question Mr. Norman is correct as to the price of a Great Yarmouth herring boat, with her nets and everything complete—£2,000. We cannot expect to see our trawl fisheries improve when we have sent to this great emporium, Billingsgate Market, thousands of trunks of soles, plaice, and haddocks, and other small bottom fish of so small a size that it's a shame they should ever have been caught and consigned to men at this and all markets through England and Scotland for sale. We often have a thousand trunks of such here in a day. The inspectors of the fisheries should come to Billingsgate and have ocular demonstration of what fishermen of every kind catch, that use the nets I have named, and see what they destroy and consign to market; they would be utterly astonished, and would go away with but one opinion and one desire, to do what they could to prevent the wanton destruction of the food of the vast increasing population of these islands. I wish to offer a few suggestions which may be of service to some of your readers, particularly those interested in the fisheries. We know

there is no space of water in the world that can be equalled by the German Ocean, both for trawl and herring fishing in deep water; its shallow waters, on the English side, also on the French, Dutch, German and Danish, and all bays, estuaries, and mouths of all rivers are nurseries for the small fry and immature fish of every kind. I hope the inspectors examined what I sent them on the 7th and 9th of December last—samples of what are sent here and sold as sprats in thousands of barrels, and often boat-loads. The samples were from Leigh, in Essex, and Dundee and Tay Bridge, Scotland. There is scarcely such a thing as a single sprat in a barrel. They are nothing but young herring, many of them the size of whitebait, and the bulk of them about the size of full-grown sprats. We cannot expect anything else than a vast decrease in our fisheries while fishermen of every kind are allowed to use such foul instruments to annihilate the fisheries and destroy their own living and industry, and the food of their fellow-creatures.

At the present time there cannot be less than 2,500 vessels engaged in the trawl fisheries in the German Ocean.

Now, let us see what is the size of the mesh of the cod-end of their nets. It runs from one inch and a-quarter to one inch and a-half. To allow the small immature fish to escape for a time to become matured as valuable food, it should not be less than two and a-half inches from knot to knot. Again,

the chain, I have no doubt, nips the ground very close, and wherever it goes over it turns everything off the bottom into the nets, little or big. Then the forty to fifty feet trawl beams or shafts—there is not much escape wherever the trawlers' net of the present day goes over. I believe it would be more profitable for the trawl fisherman to use nets of the size mesh I named above, and to use a ground rope instead of a ground chain. With the quantity of vessels I have named, and the size of the mesh in the cod-end continually dragging over the bottom of this small ocean, can it be any wonder at there being such a short supply in the catch of trawl fish for vessels, and the cry of the owners of these vessels that they do not pay? And I tell you that if the size of the mesh in the nets of all kinds is not enlarged by the Legislature, one and all will find their vessels doing worse as time rolls on, till you are compelled to enlarge the mesh of your nets. The herring nets Mr. Norman tells us of to-day in use in the Scotch boats recently fishing at Great Yarmouth, were forty-four meshes to the yard. Let me point out what has been done with this net since thirty-five years ago. This net had twenty-eight meshes to the yard, or, as near as possible, one inch and a-quarter each mesh, and was of hemp. Since then it has been gradually decreasing in size, till we now find it used in these Scotch boats of about six and a-half eighths of an inch. About seventeen years ago the old hemp net was superseded by the

cotton net, and since then the mesh has gradually decreased in size. What is the result of this? Thousands of crans and lasts of herring have been taken in their half-grown state, which if left to be matured, would have supplied thousands with better food than they have done. The fish are not near the size, particularly from Scotland, as were caught some sixteen or twenty years ago, and yet they tell the inspectors of the fisheries there is a vast increase. What of?—only half-grown fish! As Mr. Norman states, enormous bodies of large fish strike the nets, and they hang in the small mesh for a time only by their heads, then drop out of the nets to the bottom of the sea, because the mesh of the net is too small to admit them; therefore, the finest full-grown fish are lost. It is true they must considerably increase in their takes of the small fish to make up in weight for the fish they formerly took in the old hemp nets twenty years back, and three parts of the fish taken by these nets never should have been caught in their small immature state. The spring herring fishing of Lowestoft and Great Yarmouth, no doubt, has quite annihilated the Midsummer herring fishing of that coast for years past. Since the beginning of the one fishing, we have seen the extinguishing of the other, and the whitebait fishing, doubtless, has entirely destroyed the mid-winter pont-herring from off our coast. I hope the Inspectors of Fisheries will recommend the increase in the size of the mesh of the herring net to one inch and a-quarter, and in

the cod-end of the trawl net to two inches and a-half from knot to knot; to do away with ground chains for ground ropes, and also trawling in shallow waters; prohibiting trawling nearer than three miles from the shore; and to make, if possible, conventions with the French, Dutch, German, and Danish Governments to prevent trawling nearer their shores than I have stated upon our own, as many of our vessels fish in the summer quite on their shores, where there are thousands of trunks of small immature fish destroyed—a shame and disgrace to the fishermen. I hope this will be stopped for their own interests, and it would be wise of our Government to let a gunboat or two cruise to enforce this restriction, and condemn all nets found in use or on board the vessels at sea under a specified size authorised by the Government, and for them to be well examined by our coastguards before they left harbour, and when they came in, and for them to have power to seize and condemn all undersize meshed nets. And I would recommend the Inspectors of Fisheries to use their utmost endeavours to prohibit the catching of whitebait, which is no other than the small fry of the herring and other fish. It could be easily proved by putting a quart from one of these destructive nets into one of the tanks in any of the aquariums; then you will find, when matured, the fish will be nearly all herring. Again, put a stop to these seine nets—I have seen them used on parts of this coast, and heaps of fish of all sizes

brought on the beach by them: the large, what few there were, picked out and the small left to die in thousands, to be washed away by the next flood tide. The nets of the sea fisheries of all kinds want the same Government protection by Act of Parliament as the salmon, trout, lobster, crab, and oyster fisheries, and a law passed to prosecute all persons in possession of any kind of fish under a certain size. This would shortly have the desired effect, and our fisheries would soon be found as profitable to the catcher and consumer as they were twenty years ago.

EDWARD JEX.

BILLINGSGATE.

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*From* "LAND AND WATER," *February 1st*, 1879.

## *Study of the Deep-sea Fisheries.*

I BEG to acknowledge Mr. Buckland's kindness and courtesy in alluding to my last communication upon this subject as an able letter, and I hope the same may be of service, and the means of urging those who have the power to do something for the protection of this valuable and high-class food. I am asked if I can give any information that will enable the smack-owner to keep the mesh of the cod-end of the net open when the same is on the ground fishing. I am sorry again to have to revert to this point, but it is of so much importance that it cannot be too often impressed upon the Government; and

I can only repeat that which I have before stated, and which I can speak from with accuracy from personal experience. There can be no question that when there is a strain upon the trawl-warp, bridles, and the net, the meshes of the same will, to a certain degree, be drawn closer than when there is no strain upon them. But, on the other hand, the sea is not always smooth, consequently the vessel keeps giving by the roll of the sea; this, combined with the pitching of the vessel, will cause a long give on the strain upon the trawl-warp, bridles, and net, whereby every mesh undoubtedly relaxes and opens. I have seen the trawl-warp as straight as a bar of iron, when getting the gear or nets with four hands at the capstan could not get a "pall" upon it, but every time the vessel lurched or gave by the action of the sea, we could round the capstan with the greatest ease, to the extent of a fathom or two of rope. Then, again, as the vessel rose to the return action of the sea, the warp would become, as I have before stated, as straight as a rod. Thousands besides myself can testify to the accuracy of this statement. There can be no doubt that every mesh must open, as the strain must naturally become suddenly reduced, and may be seen plainly by any man. For instance, take, as advised by Mr. Buckland, a cabbage net, and attach the same to a line or pole, and sink it to the bottom of a clear stream (where it can plainly be seen), then give a sudden relax of a foot or two upon the line or pole, such as the sudden lurch of a

vessel upon the trawl-warp and net, it will then be clearly seen that it will have the action upon the mesh of the net that I state above. But should the mesh be drawn straight and close, as you say, then it cannot make any difference to the fishermen if the mesh of the cod-end of the trawl-net is the size I advocate, two inches and a-half. For what reason should there be any objection to a uniform size in the mesh of the trawl-net, which would be a great benefit to the fishermen in many ways? There would not be one-fourth of the amount of dross and other rubbish in the net; there would be but little of the sorting to which Mr. Buckland alludes required. Before I leave this important part of the subject, I owe it to my experience to state that I cannot confirm Mr. Buckland's impression that sorting, in the sense in which he means it, is now the practice, as a visit to this market during any part of the busy hours of the morning would convince him that almost anything big enough to be taken between the fingers as a fish is sent to this market for sale. I feel confident that there would not be one-fourth these small fish smothered by the dross, or immature fish destroyed, and there would be by this means many hundreds of tons of fish preserved to be matured as food for the people, which is now destroyed by the small mesh in the cod-end. I must inform Mr. Buckland that there can be no doubt that where Mr. Burr's net from his friend's shrimp-boat was fishing off King's Lynn, no

... it would get a good deal of
... than we should in our thirty
... in deep water.
... many tons of all kinds of the
... fish destroyed all round the
... by the shrimp-boats and other
... sorry to say they are the
... of tons of prospective food.
... for an inquiry into the size of
... these small craft fish with in
... and mouths of the rivers, and
... of great value could they be
... in the preservation of the small
... nearly all kinds of our deep-sea fish.
... the substitution of ground-ropes
... and prohibiting trawling on our
... than three miles from the land, also
... if conventions could be made with
... tch, German, and Danish Govern-
... the best means of preserving the
... both for the people of this country
... nations bordering upon the German
... wish I felt myself a little more competent
... answer from personal observation the
... yet very pertinent scientific questions
... Buckland propounds as to the evolution
... or spawn of the sole. I think if much
... known of this interesting subject, Mr. Buckland
... most likely be acquainted with it; in the
... of certainty, I can only tell him what is

universally believed as to the egg or spawn of the sea.

I have no doubt it floats upon the surface of the sea, as do many other kinds which go through their several stages of development while floating upon the surface. There can be no doubt that many members of our deep-sea fish, both round and flat, are subject to the same life-giving power—namely, the fructifying influences of air, light, and heat. In confirmation of the general belief my friend, Mr. Cook, of Hull, a fisherman of thirty years' experience, tells me in a letter dated December 13th, 1878, that he has seen large shoals of spawn floating on the surface of the sea, and has drawn many a bucketful and had it alive in his hands. I believe what Mr. Matthias Dunn states to be perfectly true in respect to the sole in its very early state of existence, but, like yourself, I should like to hear further information upon this valuable and curious point.

I will forward to you at my earliest opportunity specimens of ungutted fish. There is room for a most serious inquiry by the inspectors of the fisheries and the Government into the size of the mesh of the net used by every class of fishermen around these islands. The greatest injury to the small fish of every kind is the small-mesh net. Let them be strictly looked into. Does Mr. Buckland or any one else want to tell me or the public that there is the same means of escape for a fish or any living thing

through an aperture of one inch and a-quarter to one inch and a-half as there is through an aperture of two inches and a-half? This is the position as to the trawl-net as now in use, and all other nets are in as bad a state as to the respective size of the meshes, if the mesh of the net of all kinds, both trawl, drift, seine, and stake-nets used in the fisheries, which are now worse than they have been for years past, and will be found, as time goes on, to get still worse, till the mesh of the nets is increased by Act of Parliament.

If the size of the mesh of the salmon and trout nets, also a close time for the lobster, crab, and oyster fisheries, can only be acknowledged by one and all a great preservation to these fisheries, and no other opinion can be felt than if an Act of Parliament was passed to protect our deep-sea fisheries, no doubt it would have the same beneficial result in protecting this valuable food of both rich and poor. The spring herring fishery, if in the months of March, April, and May, employ a thousand hands or more at Lowestoft; what would it do were the fish allowed to remain in the sea and mature? They would not only employ a much larger number of hands, but they would supply the vast masses of the people with a most delicious, cheap, and nutritious food, which they have of late years been quite deprived of from this coast.

This valuable food I have sold when they first came in at 25*s.* per 100 fish, and in a week or two

after the fishing has commenced as low as 3*s.* per 100 fish, and have sold over 1,000 pads per day for weeks; but since this destructive spring herring fishery has been carried on we have seen this desirable fish food entirely disappear from our markets. The spring herrings have been sold for only a few pence per 100, and not any nourishment in them as food in their immature state.

As regards the Dutch and French fishermen wanting them for bait, it is a shame and a sin that any Government should allow their fishermen to destroy this valuable prospective food as it has been the last ten years by the fishermen of the ports I named in my last letter, and what may be the profit of a few is no doubt a serious loss to thousands. I believe in a few years the herring fishermen will feel the ill effects which many, I fear, have already done by the repeal in the size of the mesh of the herring net and gear by the Sea Fisheries Act, 1868. It would be a grand thing for both fishermen and the public if the Government would withdraw this Act of Parliament, and allow no net to be used under a specified size for the several fisheries, and to be under the supervision of the Government and those I advised in my last letter.

The small immature fish have no end of enemies besides the small mesh of the cod-end of the trawl net. The struggle for life on the part of the finny tribes must now be a severe one. The shrimp, whitebait, sprat, seine, and stake nets, besides their

natural enemies, are terribly destructive to the small immature fish of all kinds, and I hope the Legislature will pass a law to protect the interests of this splendid nutritious food of our teeming multitudes, and to give the inspectors of our fisheries power whereby they can protect the interests alike of the fishermen and the people.

BILLINGSGATE. EDWARD JEX.

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*From* "LAND AND WATER," *February 15th*, 1879.

## *The Trawl Net.*

I FELT much pleased to see in your issue of the 25th of last month that Mr. Buckland had consulted Mr. Farini, of the Westminster Aquarium, relative to the working of the mesh of the trawl net, and I have no doubt it appeared to Mr. Buckland an unknown way to trawl fishermen of keeping the mesh open when the net is on the ground fishing. But the square mesh has been tried years ago, and Mr. Farini is quite right as regards the square mesh keeping open; but what strength does the square mesh lose in the net as compared with the diamond mesh? Let any one, for example, test the strength of each. Take a piece of net made with the square mesh, and try the strain it will bear, and also take a piece of the same size with the diamond mesh, and it will be found the considerable amount of strain the diamond mesh will stand over the square mesh,

that it will surprise many—and this would be a serious item in a trawl-net. The loss of strength by the square mesh would be detrimental in the use of the trawl-net. The square mesh would not be strong enough to bear the weight of dross, rubbish, and fish. The net would be constantly split, and the men would lose no end of time and labour, and it would be a serious addition to the already heavy expenses. The suggestion given by Mr. Farini, to obviate the collection of weeds and rubbish, to attach a rope to the upper surface of the net, would be of no use, I am afraid, for this reason: A vessel with, say, from forty to fifty fathoms of trawl warp out, or more, and the vessel going, say, five or six knots through the water, and the net possibly containing some tons of dross, rubbish, and fish, the net also working a long way from the vessel, I think the effect of the men pulling on a rope as recommended by Mr. Farini would have very little effect, if any, in shaking the dross or anything else out of the net. But, in my opinion, if it did anything, it might probably upset the net and injure the whole of the gear, which would be a serious loss of time and expense to the owner and crew. As to the suggestions offered by "Scotus," I fear that it would have no chance of working at the bottom of the German Ocean, and I believe it would be a difficult job to persuade any of our sensible men to try it. It might do in some pond or river where there is not much current, but I fear its practicability in our

thirty to eighty-ton vessels, with from twenty to eighty fathoms of a six or seven inch warp out, very often in stiff weather, and strong gales, and heavy seas. The only plan that I see is to enlarge the size of the mesh of the ground and cod-end, so as to let the dross and rubbish out—also the immature fish might escape for a time. The fishermen will not wear out near the quantity of net; the vessels will not have so much weight to draw over the bottom; the result will be more clear earnings per vessel for both owners and crew, and no close-time is required, as commented upon by your correspondent in your last edition. The mesh, of all nets, being of a sufficient size, will act as a close-time. The reason the trawl beam or shaft is three feet from the bottom is thus: the beam being forty to fifty feet or more in length, is rose upon two iron frames called trawl heads, as stated in your last. Three feet above the bottom, attached to the whole length of this trawl beam, is the top part of the mouth of the net, the under portion of which, being composed of a chain or rope, scrapes and nips the bottom very close, and no doubt turns nearly everything into the net from the ground wherever the trawler's net goes over. This is called by trawlers the ground rope or ground chain. There cannot be much spawn, if any, destroyed by the nets, as the same is gradually rising towards the surface for development. As to the question of a close-time, I must leave this to those who advocate

it. I have never done so, as I do not think it is either necessary or capable of enforcement. As I have before pointed out, I must now repeat, that in my opinion a proper enlargement of the mesh, in all nets, would sufficiently operate as a close-time for the protection of the immature fish, and be a great benefit to the fishermen and the public.

BILLINGSGATE. EDWARD JEX.

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*From* "LAND AND WATER," *March 8th*, 1879.

*The Deep-sea Fisheries.—Small v. Large Mesh.*

I HAVE been much amused at Mr. Buckland's remarks and suggestions in a late number of "Land and Water" on the important question of our deep-sea fisheries. He says the Royal Commission were received with candour and courtesy wherever they went. It would not have reflected much to the credit of the fishing fraternity had it been otherwise. But unfortunately there are hundreds outside the circle that he came in contact with that view the affair like so many scarecrows, forgetting the important fact that it is the duty of all good Governments, like foster parents, to keep a sharp eye on anything that tends to the injury of Her Majesty's subjects, and if any one thinks there is no occasion for Government interference in the question of the small mesh, I beg to differ from him, after an

experience of about forty years. He need not be discouraged just now because he has not deprived Mr. Fox of his brush and pads, but rather give another crack of the whip and cry "Hark away!" and Reynard will be caught and his teeth drawn out, if not entirely killed. I was at sea when the inquiry took place in this locality, or I should most certainly have put in an appearance. I have also observed that much of the evidence brought forward is of no use whatever to the Commission. First, as regards the question of limit, I was surprised at one gentleman saying he should not object to a twenty-mile limit, providing it was reciprocal. Now a twenty-mile limit would have just put us outside of all good tracks for fish in the spring and summer months from Lerchallad in Holland down to Agger in Jutland. Within that distance, and about six miles off the shore, are the very places where we get the most fish. I may say the same of South Holland up to Schowen; besides, I have been told by merchants at the city of Bremen that the German limit was nine miles. On the English coast there is not much profitable trawl fishing to be had within twenty miles, except in Rye Bay, and also Shields and Hartlepool. The greatest part of our English coast is foul ground, more or less. Of all the arguments that have been brought forward, and some are true to a great extent, but not wholly correct, the letter endorsed "W. S. Green" has the right sow by the ear. He says:—"My experience is that the

meshes of that part of the net containing the mass of fish are, in properly made trawl (mark that!) generally strained almost square." That is the experience of all fishermen. The mass of fish extends or expands the net so much, that if the mesh was a trifle larger many of the small fish would escape, if not all. Whenever we are among soles or small haddocks you will invariably find from five to fifteen pairs of small soles and other small fish one-third the way through the mesh where it is extended, and clearly showing that if the mesh was but half an inch larger the fish would have gone through. In their dying struggles to escape, at times the fish are in the meshes so tight that frequently I have pulled some to pieces to get them out. In the spring of the year there are about fifteen hundred English vessels at work from Belgium to Jutland, and just calculate only five pairs of soles destroyed per vessel in one morning (I am sure you cannot call it anything else), and you have 7,500 pairs destroyed in one night only; and then there are about 1,000 sail of bumbs and snibs belonging to Holland and Germany doing the same thing, and then we say soles are not so plentiful as formerly. If the Government was to send a cruiser this spring among the smacks, and inspect the trawls in the morning, they would see whether the small mesh did harm or not. As for the fish—that is, the small fish—not going through because of the mud and sand, it is all bosh! We

don't have sand and mud every haul; we don't need it, in fact. It is the small mesh that harbours and causes the sand to congeal, when we do get a little. We have no right to expect that Providence will always undo the mischief that we are doing; besides, after all that has been said and written on the subject, it simply amounts to making the mesh a little larger. Some people think, by their way of talking, that Government want the fishermen to use a mesh large enough to get your head through; nothing of the kind. I would simply suggest nothing smaller than four inches from knot to knot, that is two inches on every over braid. That is no hardship, as I have had to make lower parts of nets myself at sea of that scale. In order to get a successful voyage, the net that I had in one instance from the net makers being only about two inches, and when shrunk I could scarcely get my fingers in, might as well have had cocoa-nut matting for a trawl. It is a pity that our fishermen themselves cannot see the small mesh only licks up the sand quicker directly the wind drops; it is also harder to mend when torn. By what I have seen to-day, some parties expect legislation on the question. As I took out my rule in one instance, and measured some new net where the cod-end measured $3\frac{3}{4}$ inches, there is only one way to keep the cod-end extended that is really practicable, and that is to use a single cod line. You can then extend from two to four feet, but it would not answer in those parts, because

we get large bulky bags of fish sometimes, and you could not get them to render. I have been using them in Rye Bay and other Kentish in-shore grounds in the summer months: wire, in my opinion, could be utilised for the nets, but I see no necessity, convinced from long experience at all the ports that the small mesh is the enemy to contend with. I would also abolish chain-ground ropes. Such is the nature of the work in winter time and dark nights, that everything in connection with deep sea trawling must be as plain as can be, or some of the crew would go overboard with the multitude of slack ropes. No, no: do away with the small mesh everywhere, and then you won't see what I have in one case, on the Dutch coast, off Ferchelling. I caught about 300 lb. of soles and upwards in one haul, and sent them to London by Mr. Hewitt's sailing cutters. That was before steam came into use, and the whole lot brought £1 5*s*., and no wonder, for scarcely one of the soles measured five inches long; they popped through the cod-end as fast as they could, small as it was. I shall never forget it. I saw the same thing at Yarmouth three years ago. Soles in the German Ocean chiefly feed on worms. I have scarcely ever seen anything else. The smallest soles I have ever seen have been one inch and a-half in length. Rays are about three inches long when they break their eggs. When I have an opportunity I will save some of those small soles. They are often caught between the strands of the ground-

rope. If an inspector were appointed to see that no one used a less mesh than four inches, I cannot see that it would cause hardship to any one. How many times have I brought both small soles and other fish to land, and got nothing for them?

HULL. A FISHERMAN.

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In conclusion, I have only to repeat that the deterioration of the Trawl Fisheries upon our coasts has been caused by the destruction of fry and immature fish taken by the small mesh in the cod-end of the nets. These nets have seriously impaired the productiveness of our sea fisheries. Our trawlers are now obliged to seek for their living hundreds of miles away from our once productive fishing grounds; and were it not for the steam-carriers, which convey the fish from our fishing fleets off the Dutch, German, and Danish coasts, there would be hardly any consignments of this valuable food in our markets at the present time. In the absence of any other remedy* I fearlessly submit that the small mesh in the cod-end of the trawl should be prohibited, and a law passed to reimpose the minimum size as formerly enforced under the statute of George I. E. J.

* A year has elapsed since the Worshipful Company of Fishmongers offered a valuable pecuniary honorarium to any person who could invent a mesh for the cod-end of the trawl net which would remain open so as to allow fry and immature fish to escape; no such invention has been discovered yet, and I fear never will be.

APPENDIX TO REPORT ON THE SEA AND COAST FISHERIES OF ENGLAND AND WALES, by FRANK BUCKLAND and S. WALPOLE, Esquires. Held at Fishmongers' Hall, London Bridge, London, Friday, 18th July, 1879.

PRESENT:

FRANK BUCKLAND and SPENCER WALPOLE, Esquires.

EDWARD JEX, fish salesman, Billingsgate.—Has been established 26 years. There are 2,500 vessels engaged in the deep-sea trawl fishery of the North Sea.

The meshes of the nets employed vary from 4 inches in the upper end to 2 inches (or less) in the cod end of the net.

The trawls collect dross and rubbish which block up the cod end of the net. Some provision should be made on public grounds to protect immature fish. This should be done by increasing the mesh so as to let the little fish through. The mesh at the cod end of the net should be not less than 3 inches in the clear.

Thinks it would be beneficial also to use a ground rope instead of a chain. Many fish are destroyed by the use of the ground chain.

The present chain, moreover, does not extend the mesh at the upper end, as it is shorter than the net is broad.

This, however, is not of so much importance as the mesh at the cod end. One of his captains told him that in the last 16 years he had thrown more fish overboard than he had brought to market, the fish not being big enough to bring home. Is in favour of an international arrangement for securing a large mesh from all the countries which fish in the North Sea. There is nothing except an increased mesh which will preserve the fishermen of the North Sea.

In most cases, too, the cod end is doubled. If only a

Believes that there are no herrings caught nearer London than Harwich.

There was a wonderful mackerel fishery at Yarmouth.

[*Hands in return of the fish sold in Billingsgate every morning.*] A machine contains about two tons of fish. The baskets are of various sizes. Plaice, haddock, whiting, skate, &c., are termed "offal." Soles, turbot, brills, are called "prime."

There is no difficulty in selling any amount of fish.

The fishing vessels have been increased since his boyhood tenfold, and the ocean is overfished.

Would make no law as to the mesh of net, unless it could be an international arrangement.

Is aware that the great supply of shrimps is caught by in-shore trawlers fishing with a very fine mesh. The law of mesh should be increased or the shrimpers should at any rate have a close season. The shrimps, however, are wanted in the summer time when the small fish are chiefly on the coast. There should be some provision for the in-shore trawlers.

Is not aware that more sprags come to the London market than can be sold. Is aware that sprats are sold for manure.

By putting down the whitebait fishing, the herrings would be spared. The home herring fishery is annihilated. Believes this is due to the destruction of whitebait.

There is a great quantity of small sprats sold in Grimsby. They are caught on the lines, and this cannot be stopped.

The fish sent from Rye Bay during the summer are so small that they ought not to be caught.

GEORGE STEVENSON, fish seller.—During the last 50 years there has been a great diminution in the supply of fish. Used to buy bushels of soles at from 13*s.* to 30*s.*, which contained twice as much fish as are now sold in trunks for 30*s.* to £9. £6 6*s.* is the price to-day.

There has been an enormous decrease in the supply. There is less fish coming to Billingsgate now than used to come 50 years ago.

The fish round our own coasts are absolutely destroyed.

Agrees with Mr. Jex that the meshes should be enlarged.

Would compel the fishermen to use ropes instead of chains.

The shrimp trawlers do not destroy much fish, and are not worth considering.

Would not interfere with the sale of whitebait. There ought to be a general law of mesh. Thinks the net should have a 2½-inch to 3-inch mesh at the cod end.

JOHN LAST SAYER, fish salesman.—Agrees with Mr. Jex in wishing for a larger mesh. Would pay a larger sum for fish caught with a large-meshed net than for those caught with a small-meshed net. This refers to herrings.

Cannot say whether it is possible to have a larger mesh for the trawl.

Believes that the small fish are hawked about the streets and sold to the poor. The small fish are, weight for weight, the cheapest food in the market.

Believes if the small fish were saved there would be more large fish. Would save them by extending the mesh.

EBENEZER NEWBY, fish salesman, Billingsgate.—Has been present throughout the inquiry. The supply of fish is very much decreasing. The men have to go so much farther to get the fish. The old grounds are yielding a smaller supply of an inferior (smaller) quality. They are being exhausted by over-fishing. Thinks that some remedy should be applied if it is possible to devise one.

Is in favour of a close season. Cannot say when the close season should be. It should apply to soles and turbot. Is afraid, however, that a close season is not practicable.

The next thing to do would be to have a law of mesh.

Is in favour of prohibiting the sale of fish below a certain size. This should apply to nearly all fish. It should apply to herrings. It is not practicable to apply it to sprats.

Is in favour of prohibiting whitebait. Would make it illegal to sell it. The aristocratic palate should not be pampered to the destruction of the food of the people. The whitebait, if they are not killed, would grow into herrings and sprats.

The herrings are caught on the Essex coast and to the north. Is aware that there was an exceptionally large take of herrings in 1877 on the Norfolk coast. These herrings were not native English herrings. The English herrings which used to be caught are the mature whitebait. Believes that nearly all the whitebait are now caught, and that the fishery is quite exhausted.

Is referring also to the destruction of sprats, which are sold in the Midland counties. Would like to stop the sale of small sprags, but thinks it is not practicable.

The fishing grounds are exhausted; and if it is not possible to make a close season, it is better to make a sizable fish.

Does not know what to do about the mesh, after listening to the evidence of Mr. Jex and Mr. Hewitt.

The Thames and Essex fishermen used once to produce enough fish to supply the metropolis.

The fishery for shrimps is now nearly ruined. This is due to over-fishing. The shrimps have not been driven down the river. There are now 2,000 or 3,000 men employed in Holland and Belgium catching shrimps which could be caught here. Shrimps are now not so largely eaten as they used to be; when the fruit comes in the people eat fruit instead of shrimps. The shrimps are not passed through a sieve. The fishermen pretend to do it, but they do not do it. Is in favour of doing away with the nets which stand for shrimps, and believes that they are illegal now. Thinks that the Fishmongers' Company might test their legality.

There was a time when there were smelts enough in the Thames to supply London. The smelts have fallen off like everything else, and thinks that the failure is not due to the sewage.

Thinks also that the young codlings which are taken ought not to be sold.

There are two kinds of shrimps, red and brown. The shrimps should be sifted. Very small shrimps are called "dust," and a great deal of dust is got, especially in July and August. The shrimps are sifted in London. They ought to be sifted at sea. The fishermen pretend to sift them at Leigh, and the Leigh sample is better than the sample at other places. Thinks the shrimps should be riddled whenever practicable. The gauge should not be less than three old penny pieces. The Leigh fishermen catch the shrimps all the year round from Gravesend to Margate.

HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY, ST. MARTIN'S LANE.